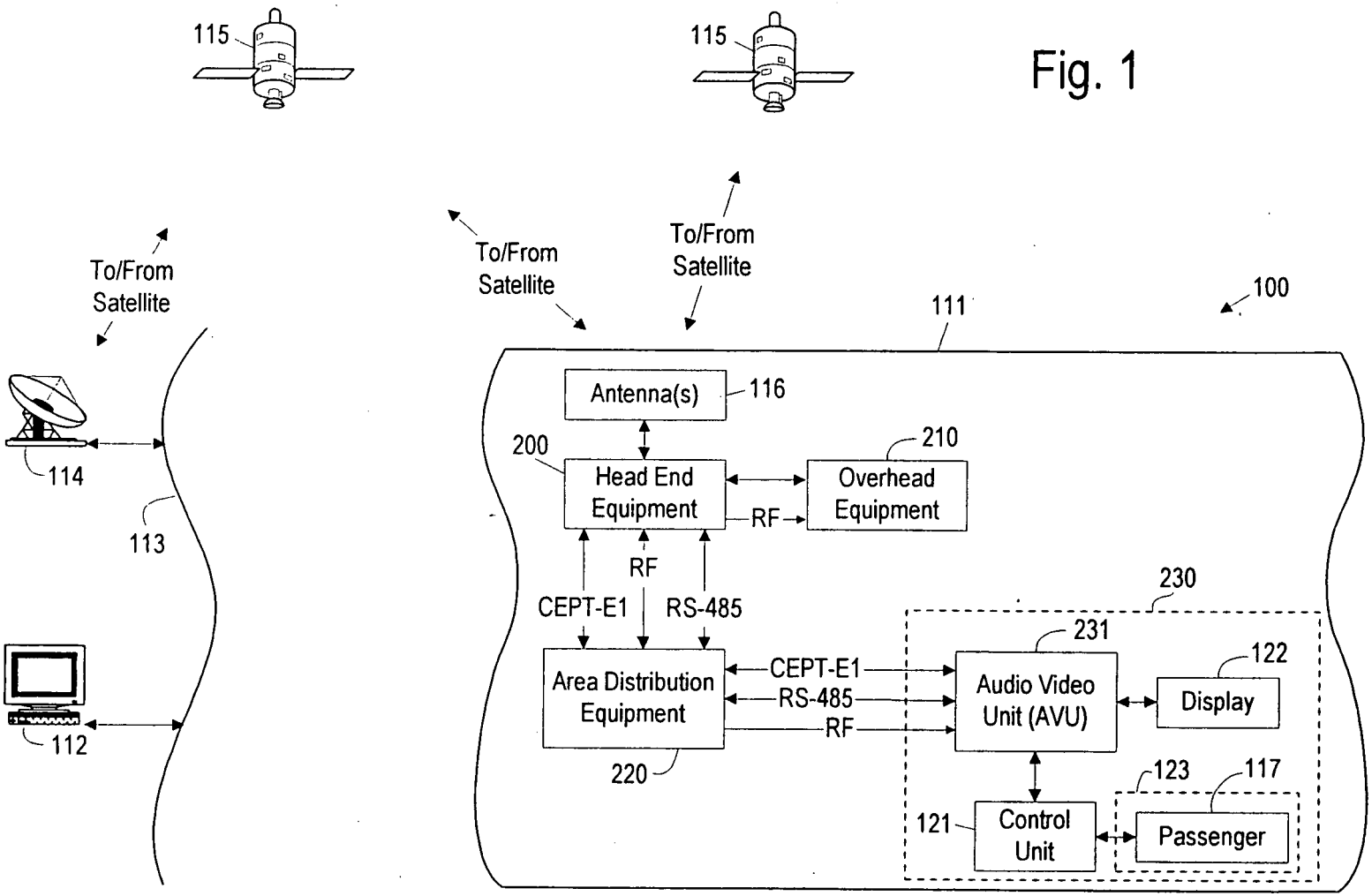

115
115
To/From Satellite
To/From Satellite
To/From Satellite
100
111
Antenna(s)
116
200
Head End Equipment
210
Overhead Equipment
RF
RF
CEPT-E1
RS-485
230
231
Area Distribution Equipment
CEPT-E1
RS-485
RF
Audio Video Unit (AVU)
122
Display
220
123
117
121
Control Unit
Passenger
114
113
112

Fig. 1

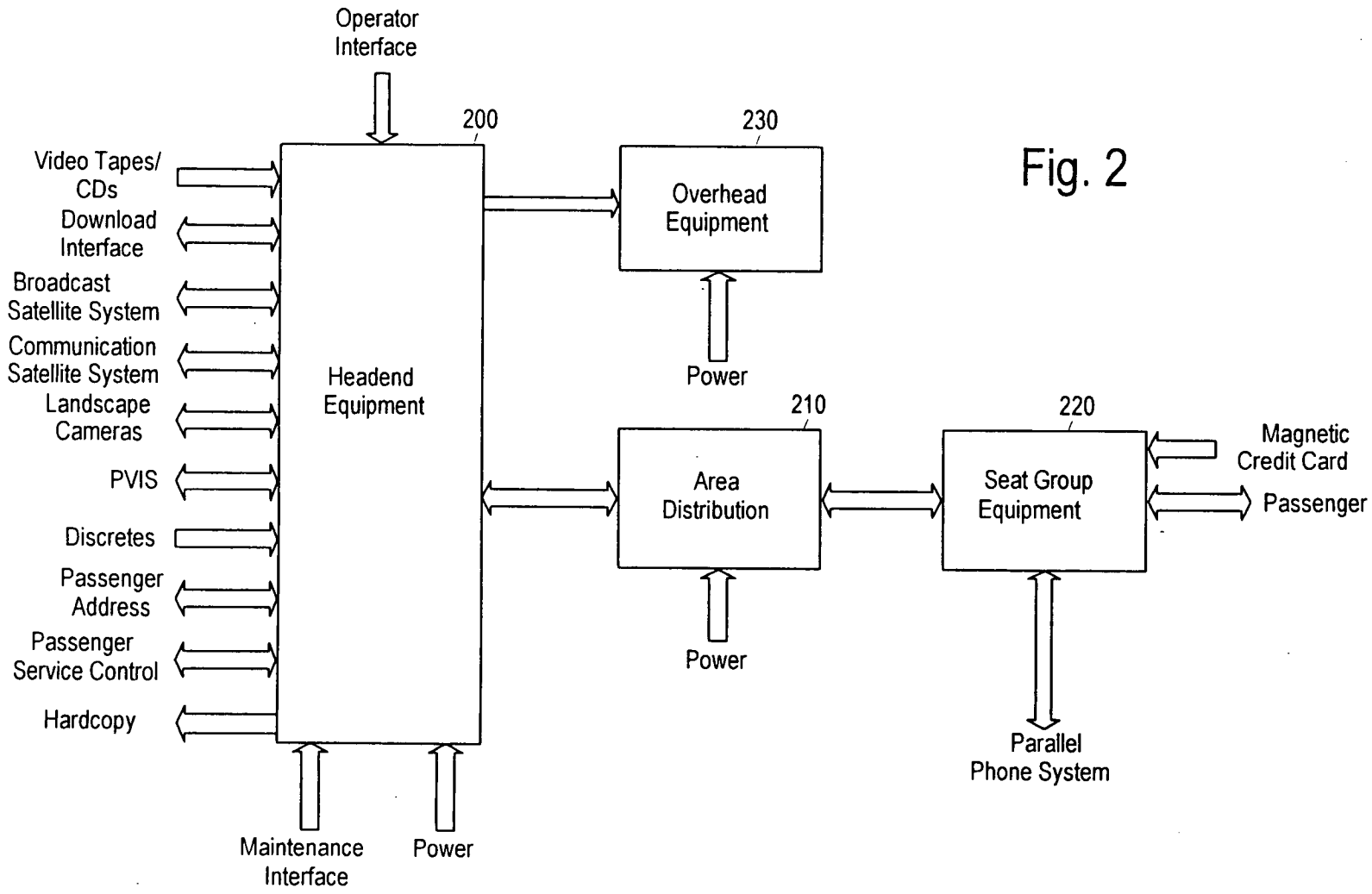

Operator Interface
200
230
Video Tapes/ CDs
Download Interface
Broadcast Satellite System
Communication Satellite System
Landscape Cameras
PVIS
Discretes
Passenger Address
Passenger Service Control
Hardcopy
Headend Equipment
Overhead Equipment
Power
210
220
Area Distribution
Seat Group Equipment
Magnetic Credit Card
Passenger
Power
Parallel Phone System
Maintenance Interface
Power

Fig. 2

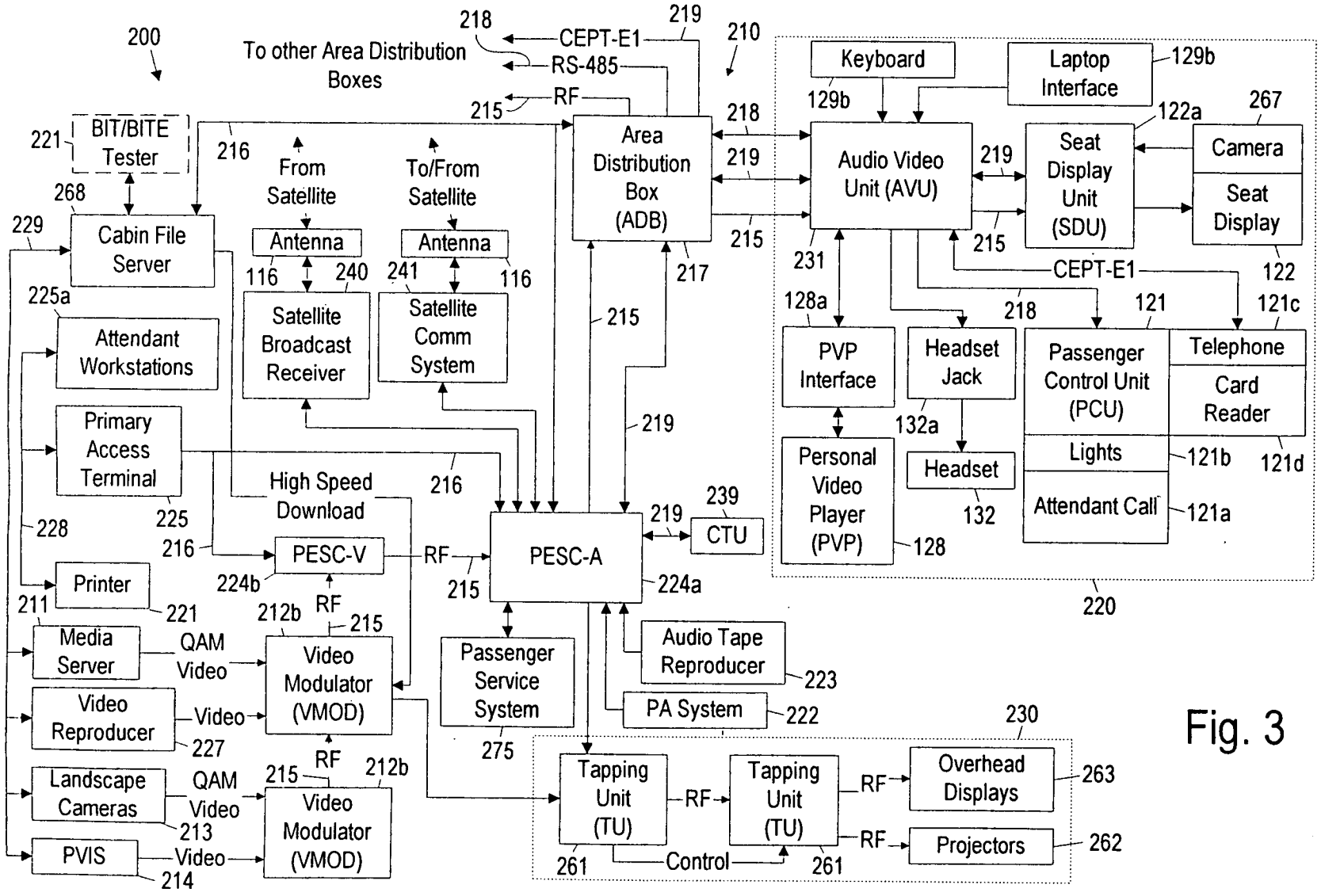

200
To other Area Distribution Boxes
218
CEPT-E1
RS-485
RF
219
210
215
BIT/BITE Tester
221
216
From Satellite
To/From Satellite
Area Distribution Box (ADB)
Keyboard
129b
Laptop Interface
Audio Video Unit (AVU)
Seat Display Unit (SDU)
122a
267
Camera
Seat Display
122
231
CEPT-E1
268
229
Cabin File Server
Antenna
116
240
241
Satellite Broadcast Receiver
Satellite Comm System
217
225a
Attendant Workstations
128a
PVP Interface
Headset Jack
132a
Passenger Control Unit (PCU)
121
Telephone
Card Reader
121c
121d
Primary Access Terminal
225
High Speed Download
Personal Video Player (PVP)
128
Headset
132
Lights
121b
Attendant Call
121a
220
228
239
CTU
PESC-V
PESC-A
224b
224a
Printer
211
Media Server
QAM Video
212b
Video Modulator (VMOD)
Audio Tape Reproducer
223
Passenger Service System
275
PA System
222
230
Video Reproducer
227
Tapping Unit (TU)
Overhead Displays
263
Landscape Cameras
213
Projectors
262
PVIS
214
261
Control

Fig. 3

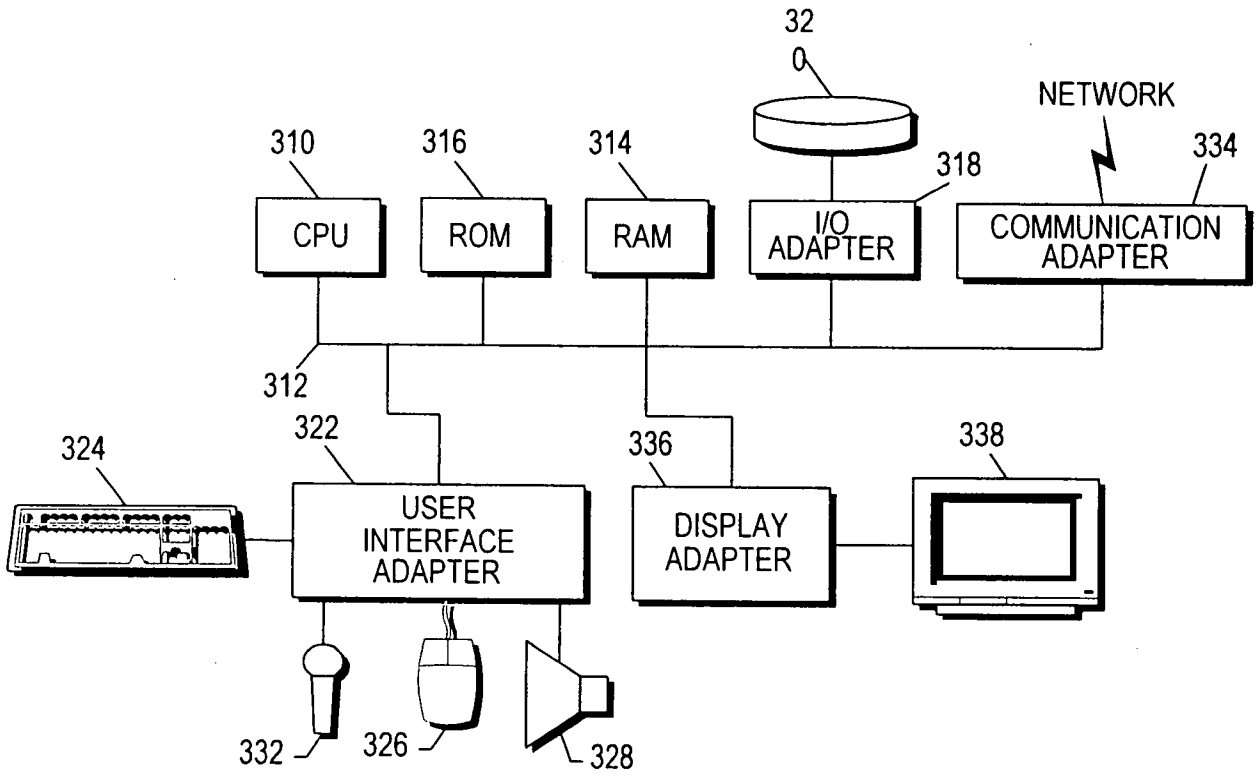

32
0
NETWORK
310
316
314
318
334
CPU
ROM
RAM
I/O
ADAPTER
COMMUNICATION
ADAPTER
312
322
336
338
324
USER
INTERFACE
ADAPTER
DISPLAY
ADAPTER
332
326
328

Fig. 4

Fig. 5

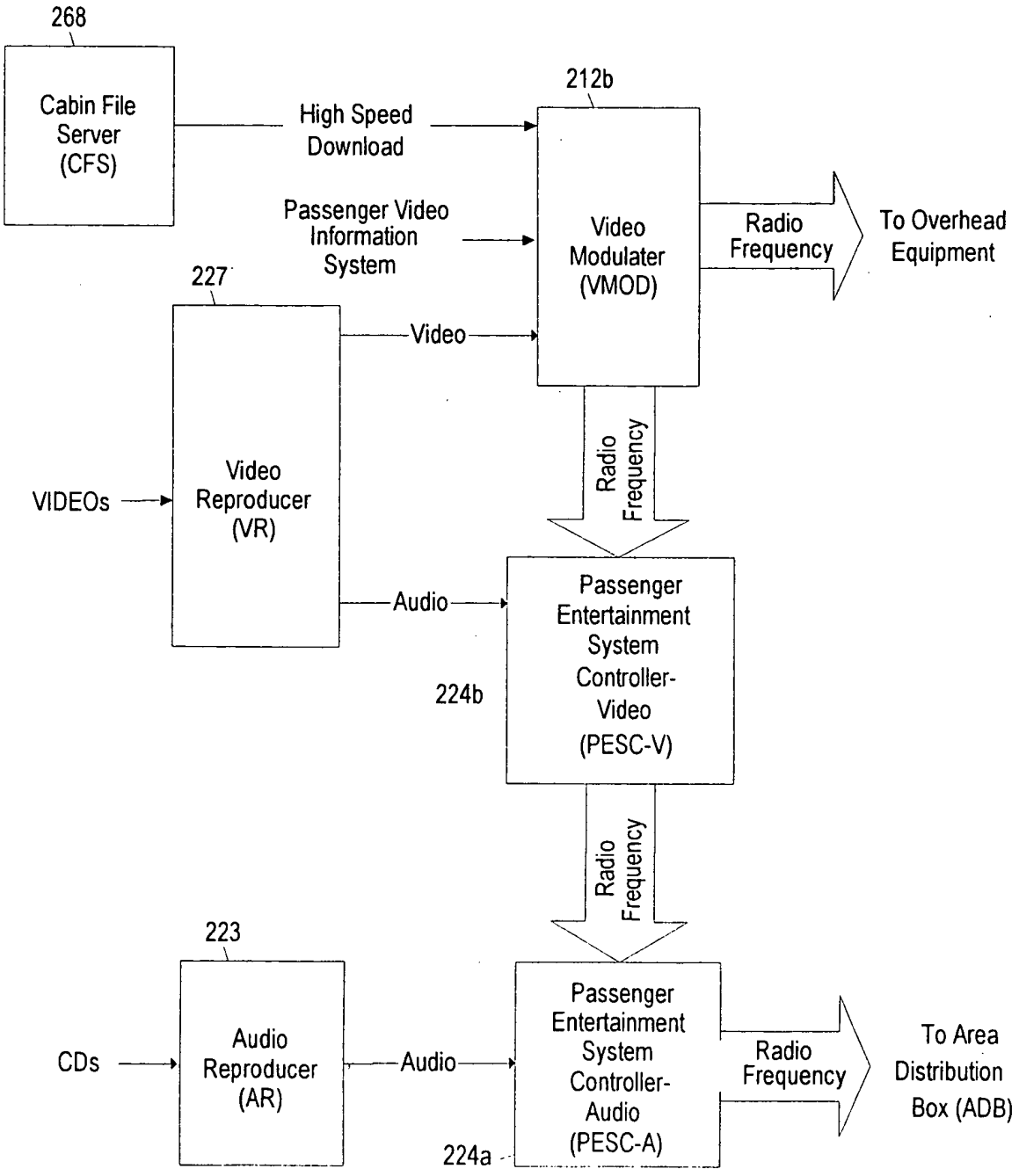

268
Cabin File Server (CFS)
High Speed Download
212b
Passenger Video Information System
Video Modulater (VMOD)
Radio Frequency
To Overhead Equipment
227
Video
VIDEOs
Video Reproducer (VR)
Radio Frequency
Audio
Passenger Entertainment System Controller-Video (PESC-V)
224b
Radio Frequency
223
CDs
Audio Reproducer (AR)
Audio
Passenger Entertainment System Controller-Audio (PESC-A)
224a
Radio Frequency
To Area Distribution Box (ADB)

Fig. 5a

QAM Audio

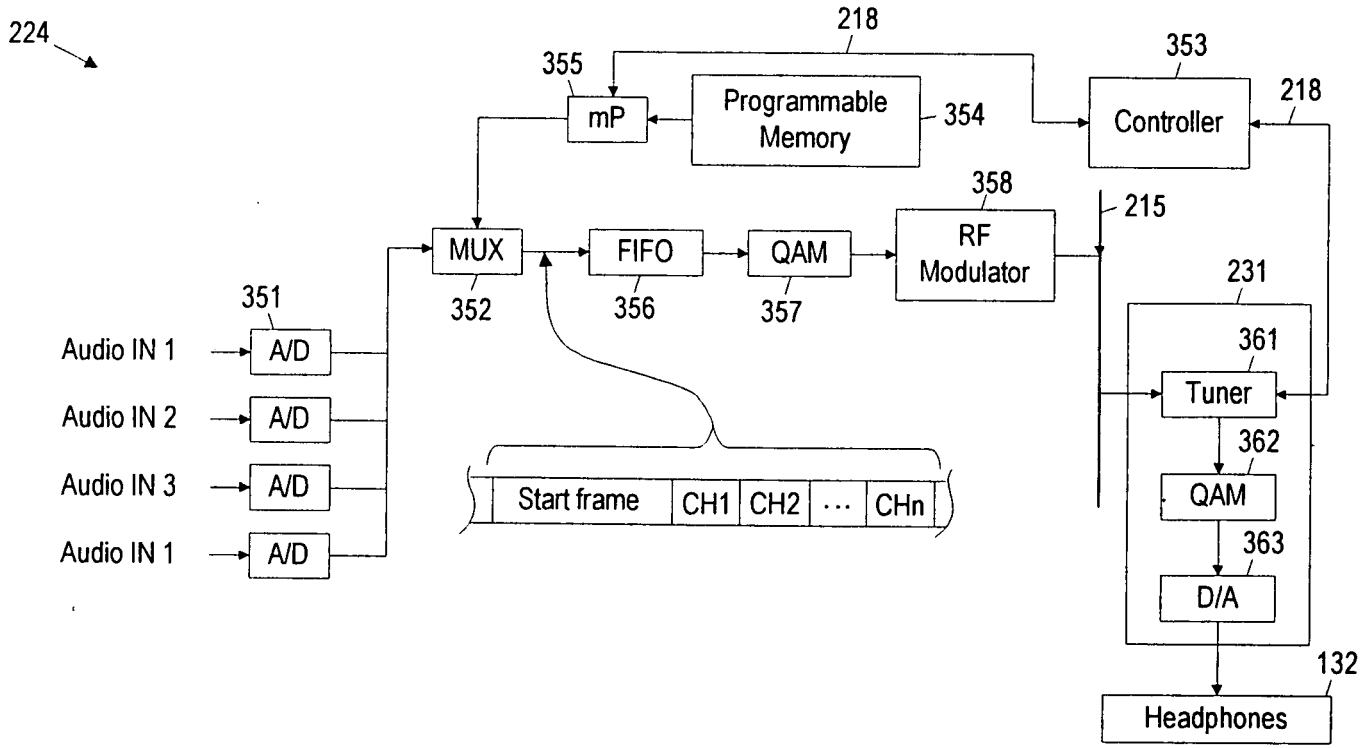


Fig. 6

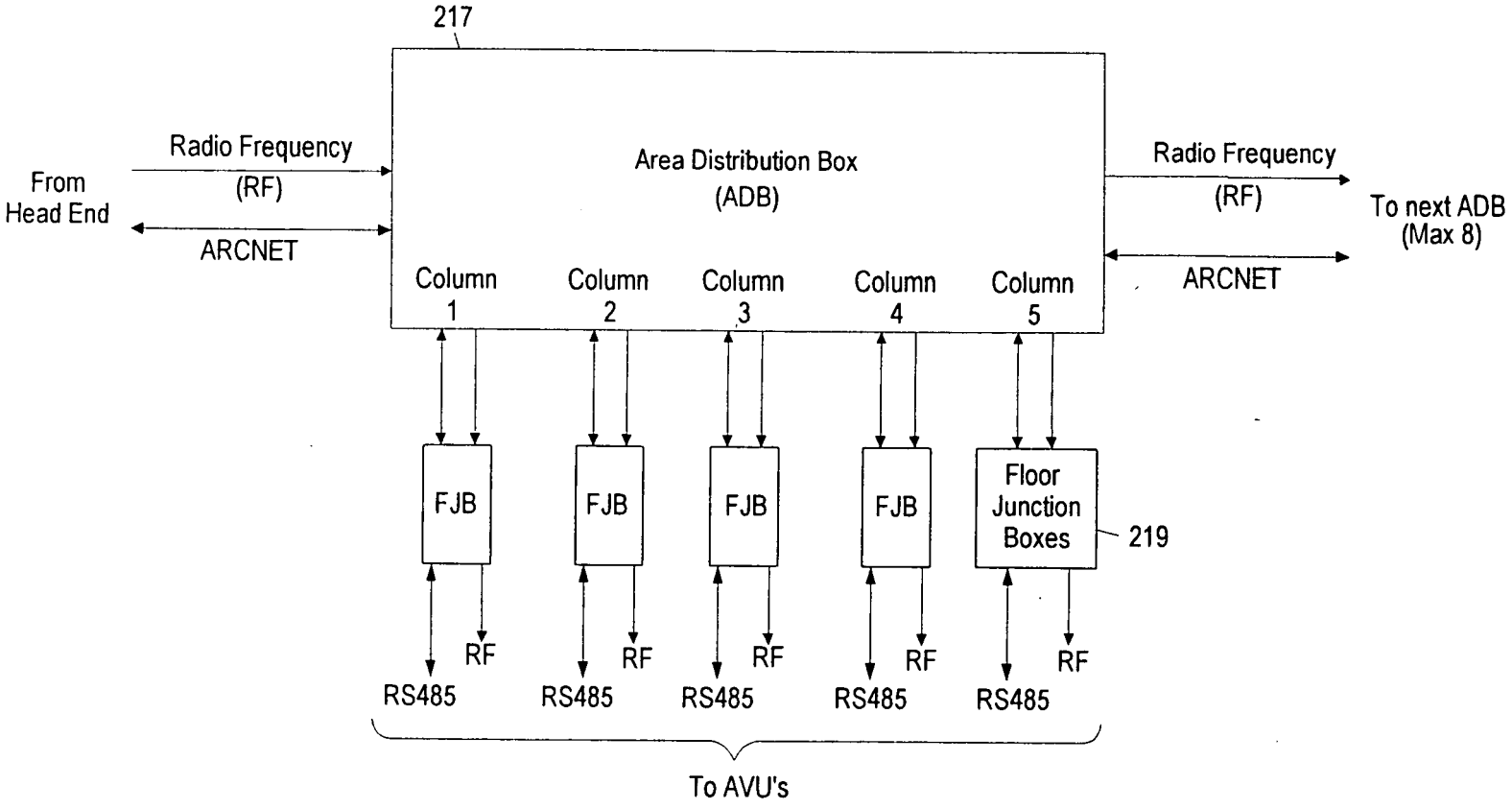
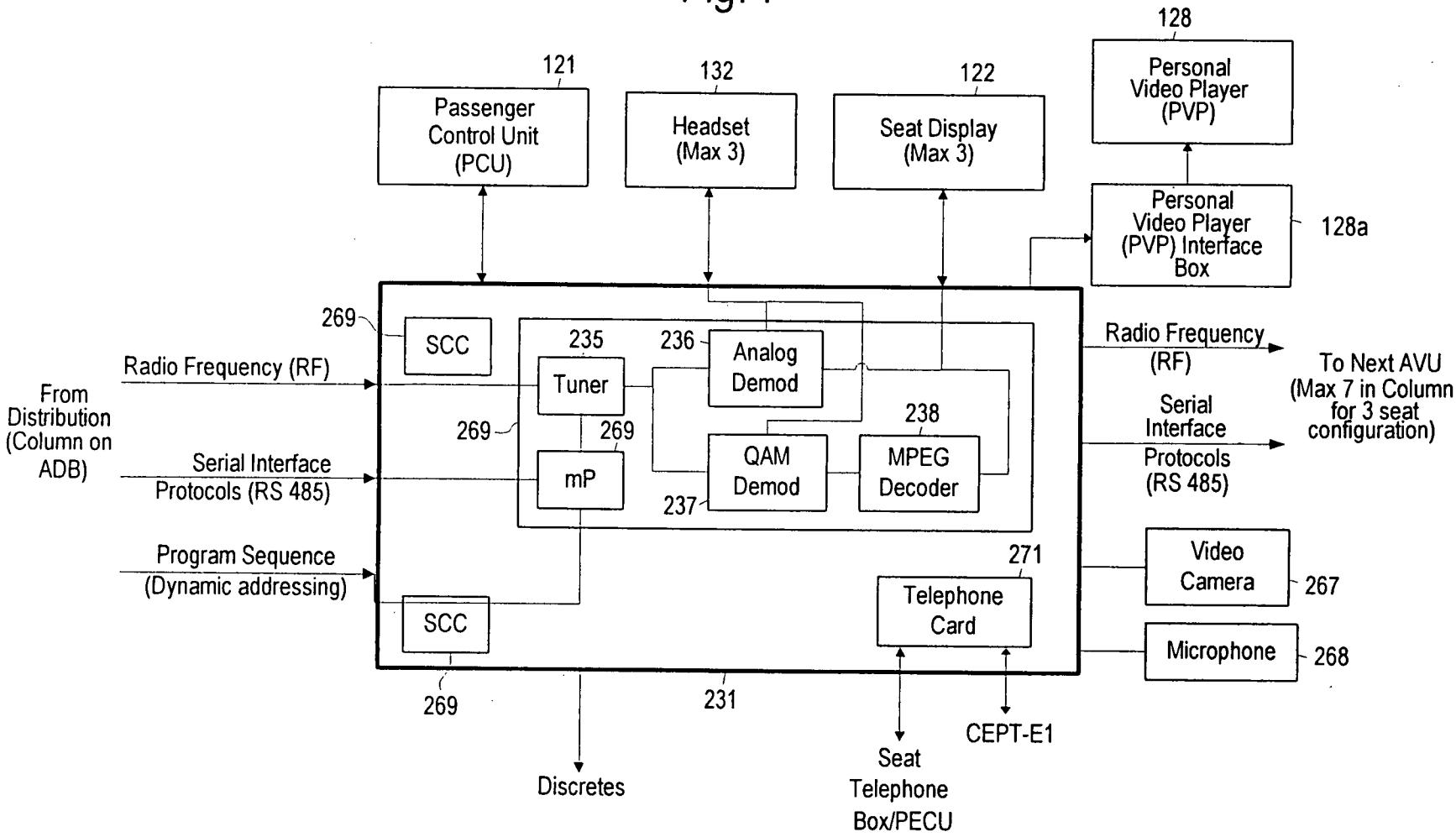

217
Area Distribution Box
(ADB)
From
Head End
Radio Frequency
(RF)
ARCNET
Radio Frequency
(RF)
ARCNET
To next ADB
(Max 8)
Column
1
Column
2
Column
3
Column
4
Column
5
FJB
FJB
FJB
FJB
Floor
Junction
Boxes
219
RF
RS485
To AVU's

Fig. 7


128
Personal Video Player (PVP)
121
Passenger Control Unit (PCU)
132
Headset (Max 3)
122
Seat Display (Max 3)
Personal Video Player (PVP) Interface Box
128a
269
SCC
235
Tuner
236
Analog Demod
238
MPEG Decoder
QAM Demod
237
mP
269
269
Radio Frequency (RF)
From Distribution (Column on ADB)
Serial Interface Protocols (RS 485)
Program Sequence (Dynamic addressing)
Radio Frequency (RF)
To Next AVU (Max 7 in Column for 3 seat configuration)
Serial Interface Protocols (RS 485)
271
Telephone Card
Video Camera
267
Microphone
268
SCC
269
231
Discretes
Seat Telephone Box/PECU
CEPT-E1

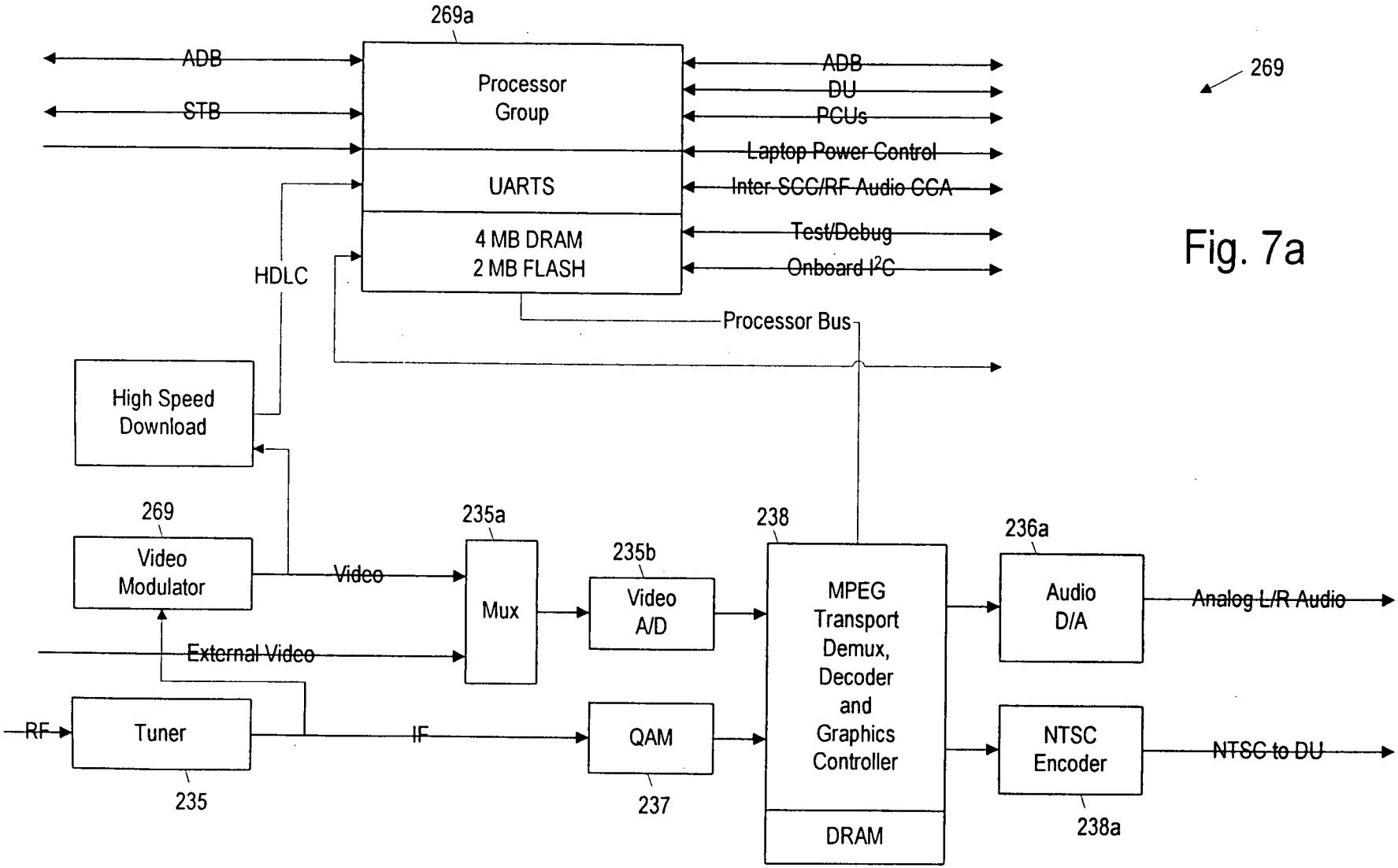

269a
ADB
STB
Processor Group
UARTS
4 MB DRAM
2 MB FLASH
ADB
DU
PCUs
Laptop Power Control
Inter-SCC/RF Audio CCA
Test/Debug
Onboard I2C
HDLC
Processor Bus
269
High Speed Download
269
Video Modulator
Video
235a
Mux
External Video
235b
Video A/D
238
MPEG Transport Demux, Decoder and Graphics Controller
DRAM
236a
Audio D/A
Analog L/R Audio
RF
Tuner
235
IF
QAM
237
NTSC Encoder
NTSC to DU
238a

Fig. 7a

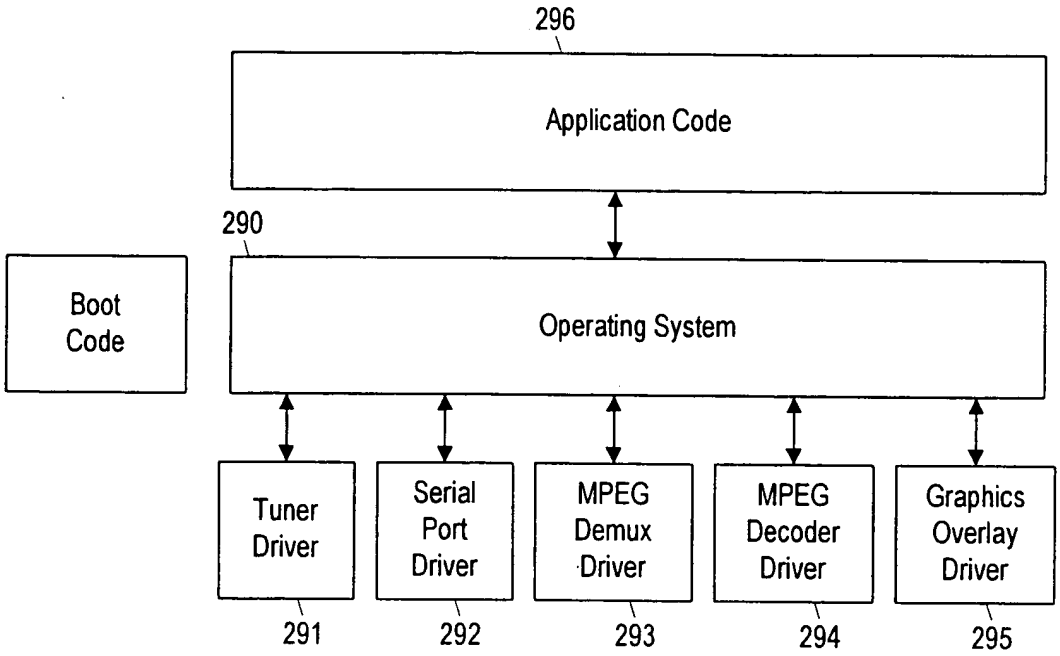

296
Application Code
290
Boot Code
Operating System
Tuner Driver
Serial Port Driver
MPEG Demux Driver
MPEG Decoder Driver
Graphics Overlay Driver
291
292
293
294
295

Fig. 7b

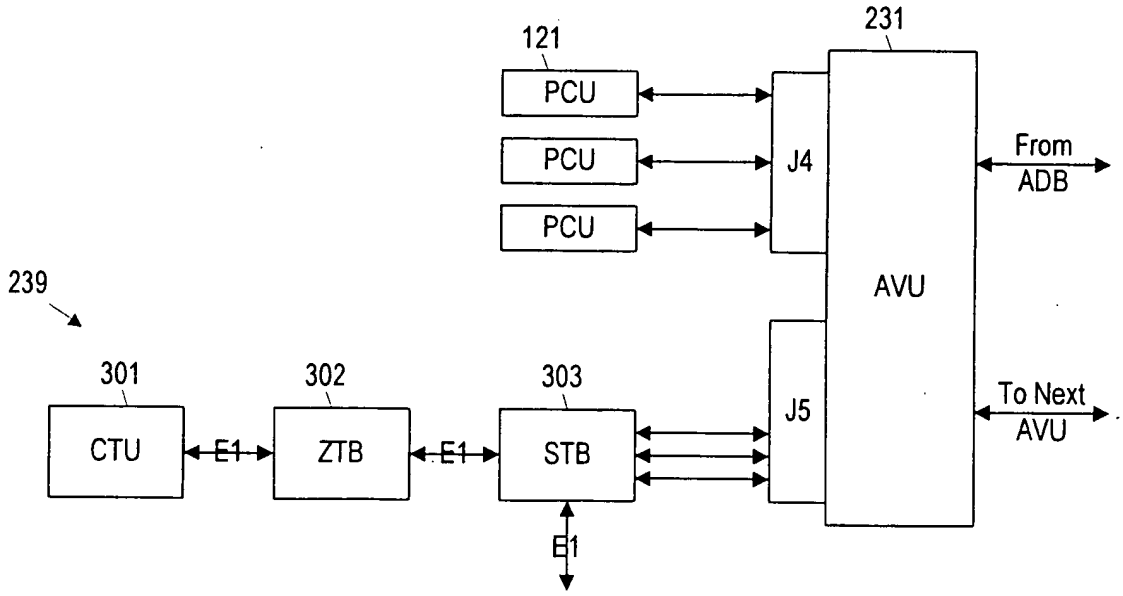

121
231
PCU
PCU
PCU
J4
From ADB
AVU
239
301
302
303
CTU
E1
ZTB
E1
STB
J5
To Next AVU
E1

Fig. 7c

Fig. 7d

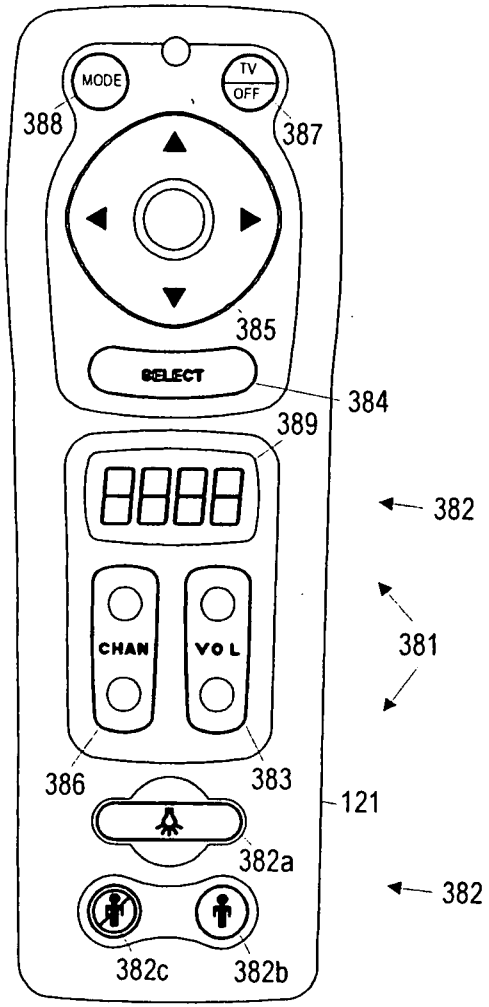

MODE
TV OFF
388
387
385
SELECT
384
389
382
381
CHAN
VOL
386
383
121
382a
382
382c
382b

Fig. 6a

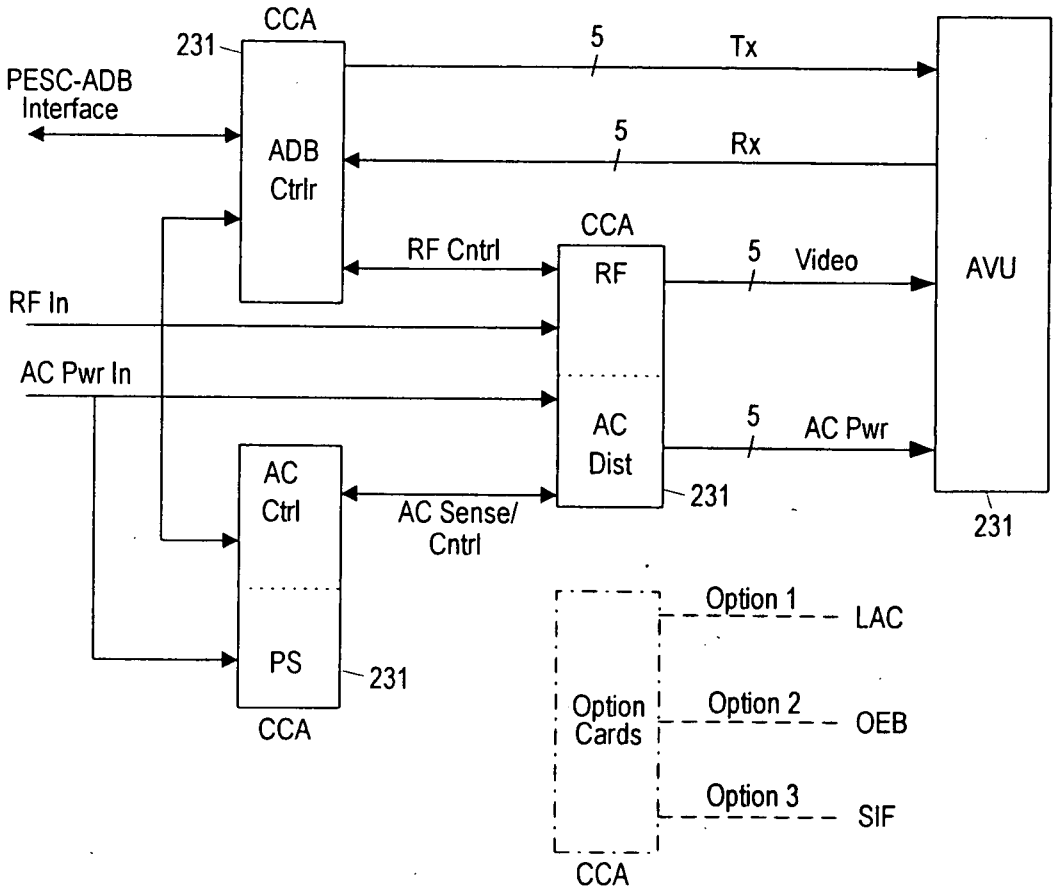

CCA
231
PESC-ADB Interface
ADB Ctrlr
5
Tx
5
Rx
CCA
RF Cntrl
RF
5
Video
AVU
RF In
AC Pwr In
AC Dist
5
AC Pwr
231
231
AC Ctrl
AC Sense/ Cntrl
PS
231
CCA
Option Cards
Option 1
LAC
Option 2
OEB
Option 3
SIF
CCA

Fig. 8

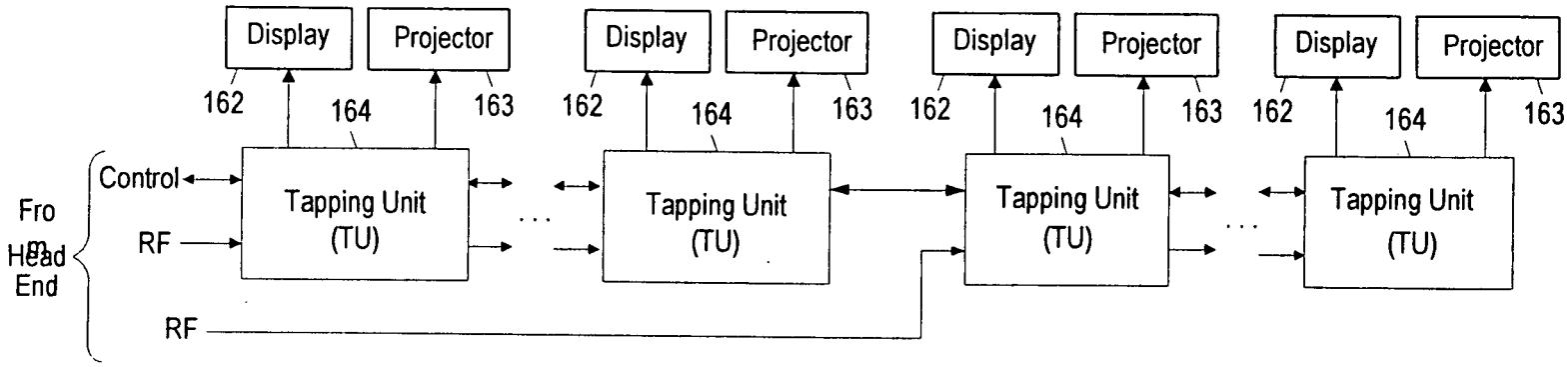


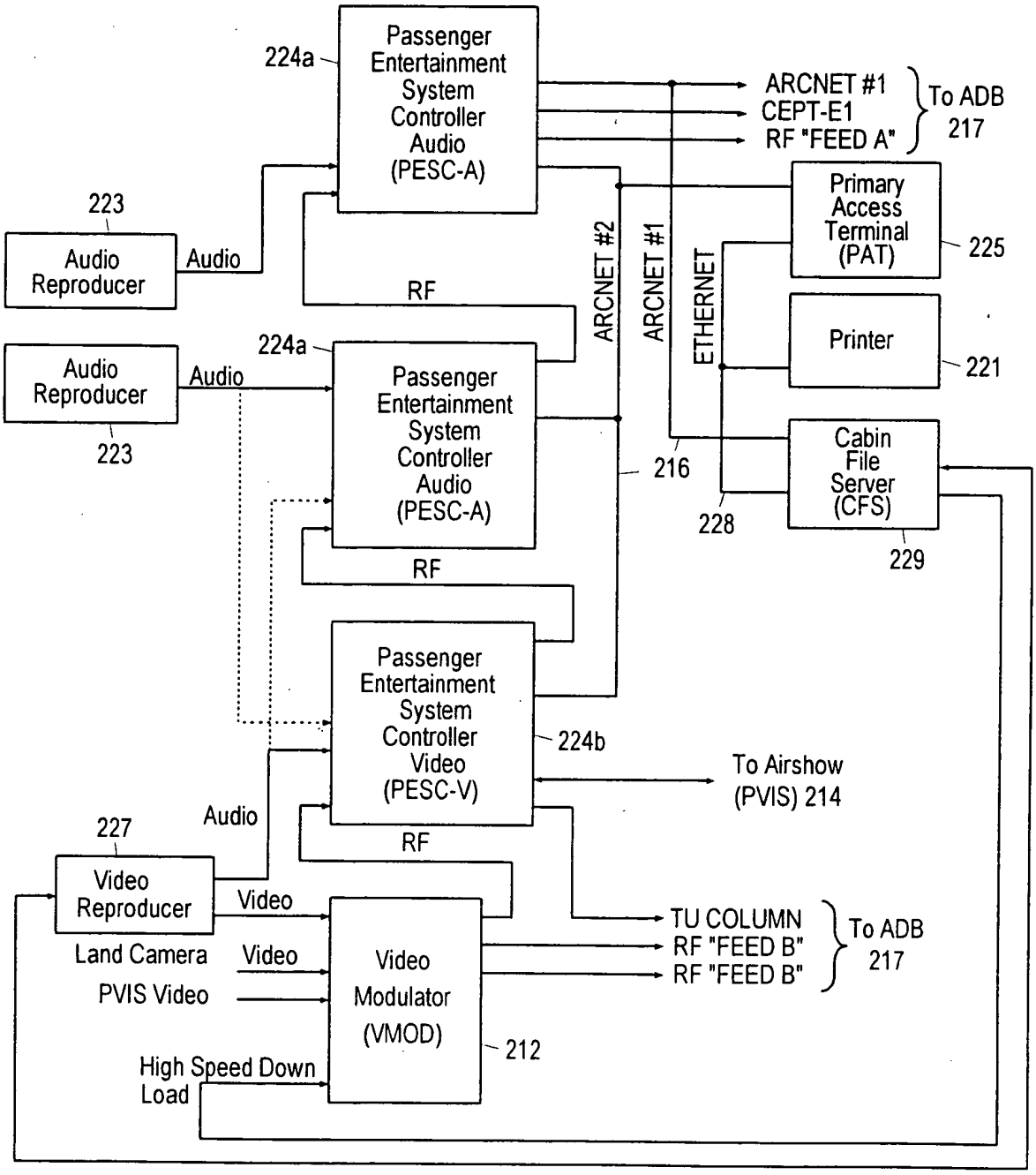
Fig. 9

Video Announcement Destination	Video Announcement Video	Video Announcement Audio
Passenger Seat	SDU	Headphones
Cabin	Overhead Displays	Cabin Audio Speakers
Passenger Seat and Cabin	SDU and Overhead Display	Headphones and Cabin Audio Speakers

Fig. 10

CFS	0 – 1
PAT	0 – 1
Printer	0 – 1
PESC-A	0 – 2
PESC-V	0 – 1
VMOD	1 – 2
TU	0 - 32 (2 columns 16 TUs per column)
DU	0 - 96 (3 per TU)
ADB	1 - 8
ADB Local Area Controller (ALAC)	0 - 5 (1 per LAC on 747-400)
AVU*	1 - 7 (three-wide per ADB seat column) 1- 8 (two-wide per ADB seat column)
SDU (seats)*	3 maximum per AVU
PCU (seats)*	3 maximum per AVU
OEB	0 - 30 / ADB overhead column (up to 3 columns per ADB)
FDB	0 - 40

Fig. 11


Passenger Entertainment System Controller Audio (PESC-A)
224a
ARCNET #1
CEPT-E1
RF "FEED A"
To ADB 217
223
Audio Reproducer
Audio
RF
ARCNET #2
ARCNET #1
ETHERNET
Primary Access Terminal (PAT)
225
Printer
221
Audio Reproducer
Audio
223
224a
Passenger Entertainment System Controller Audio (PESC-A)
216
Cabin File Server (CFS)
228
229
RF
Passenger Entertainment System Controller Video (PESC-V)
224b
To Airshow (PVIS) 214
227
Audio
RF
Video Reproducer
Video
Land Camera
Video
PVIS Video
Video Modulator (VMOD)
212
TU COLUMN
RF "FEED B"
RF "FEED B"
To ADB 217
High Speed Down Load

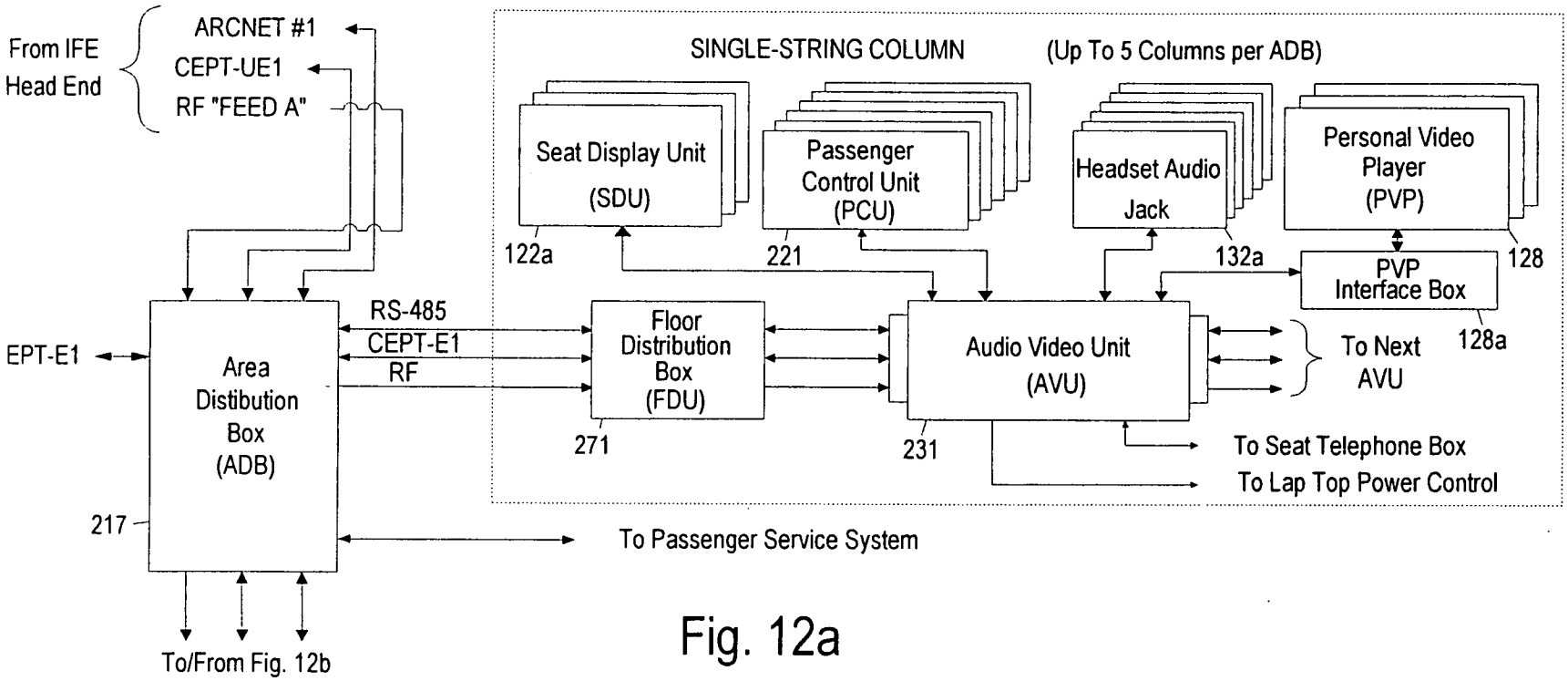
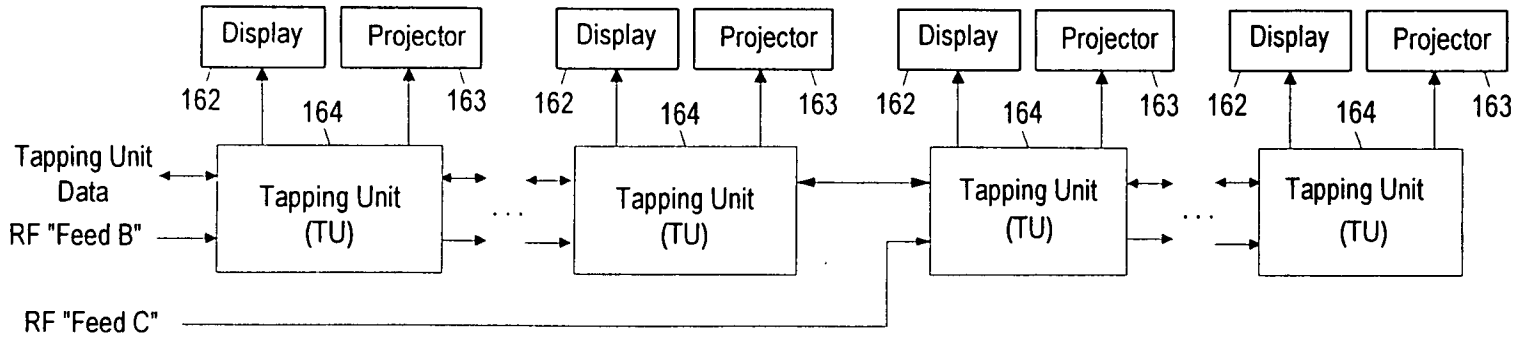


Fig. 12a

Fig. 12c



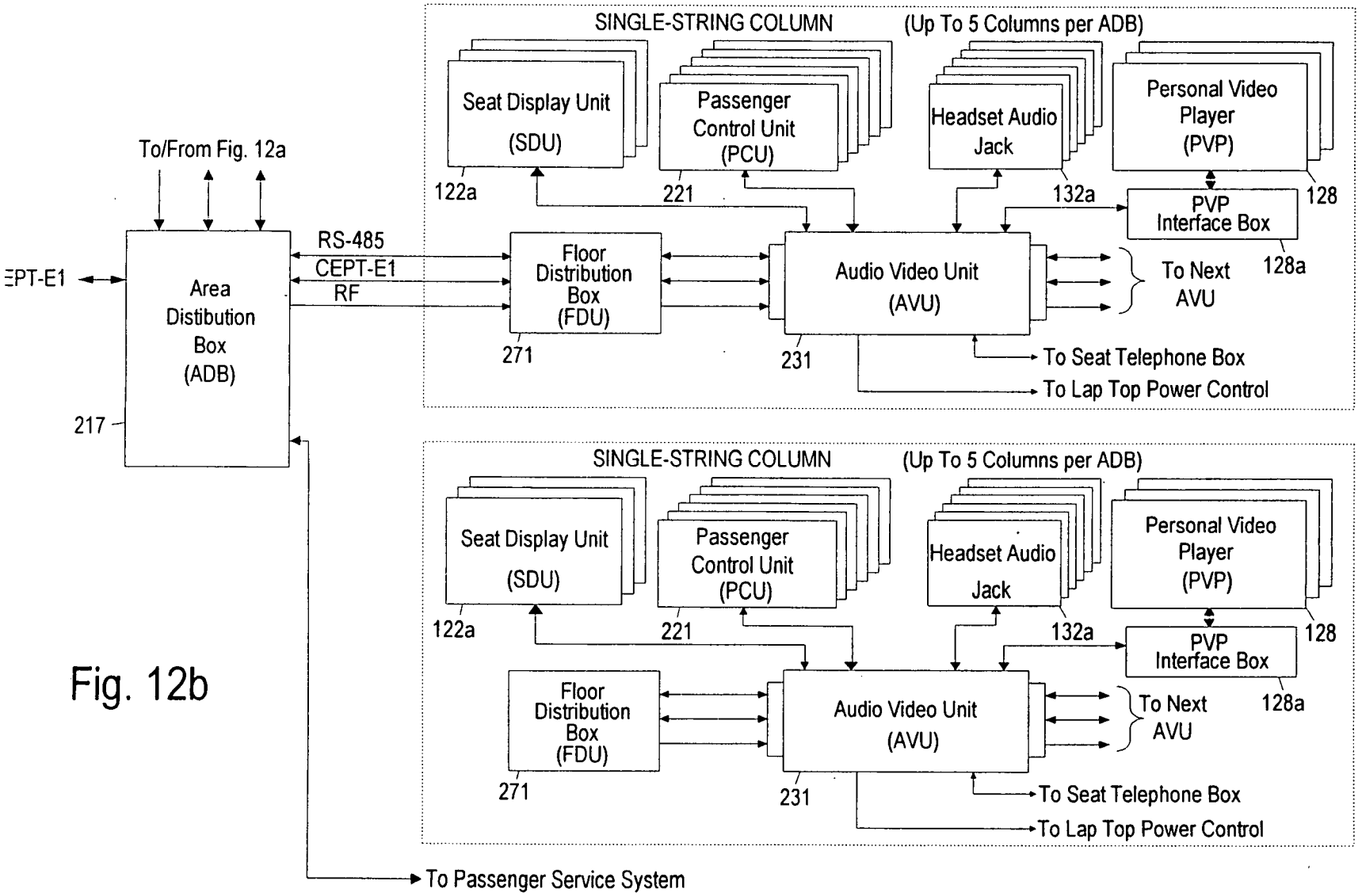

SINGLE-STRING COLUMN
(Up To 5 Columns per ADB)
Seat Display Unit (SDU)
Passenger Control Unit (PCU)
Headset Audio Jack
Personal Video Player (PVP)
122a
221
132a
128
PVP Interface Box
128a
To/From Fig. 12a
RS-485
CEPT-E1
RF
CEPT-E1
Area Distibution Box (ADB)
217
Floor Distribution Box (FDU)
271
Audio Video Unit (AVU)
231
To Next AVU
To Seat Telephone Box
To Lap Top Power Control
SINGLE-STRING COLUMN
(Up To 5 Columns per ADB)
Seat Display Unit (SDU)
Passenger Control Unit (PCU)
Headset Audio Jack
Personal Video Player (PVP)
122a
221
132a
128
PVP Interface Box
128a
Floor Distribution Box (FDU)
271
Audio Video Unit (AVU)
231
To Next AVU
To Seat Telephone Box
To Lap Top Power Control
To Passenger Service System

Fig. 12b

Fig. 14a

	PAT	PRINTER	CFS	VR	PVIS	VMOD	AR	PESC-A Primary	PESC-A Second.	PESC-V	TU	DU	ADB	ALAC	FJB	AVU	SDU DUS	SDU UEB	SDU DUC	PCU
PAT																				
Printer																				
CFS	X	X		X			X	X												
VR																				
PVIS																				
VMOD																				
VR																				
PESC-A Primary			X						X	X			X	X						
PESC-A Secondary								X		X										
PESC-V	X							X			X									
TU																				
DU												X								
ADB			X					X					X	X		X				
ALAC			X					X					X							
FJB																				
AVU																	X	X	X	X
SDU DUS																				
SDU UEB																				
SDU DUC																				
PCU																				

Fig. 13

Game Order, Payment, and Download	10 seats/15 min
Movie Order Payment and Delivery	15 seats/min
Passenger Service Requests	15 seats/min

Fig. 14

Item	PESC	ADB	AVU	DU	CFS	PAT	VR	Printer	PCU
BIT Testing	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
BITE Testing	3 min	3 min	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Definitions:

BIT Testing Duration = Amount of time required for LRU to complete comm. tests and report on errors

BITE Testing Duration = Amount of time required for LRU to complete its internal BITE testing

Fig. 16

Item	Requirement
Source Impedance,	Less than 50 ohms
Load Impedance	600 ohms nominal (unbalanced)
Output Level	775 mV rms at 1 KHz
Audio Bandwidth	50 Hz--15 KHz

Fig. 15

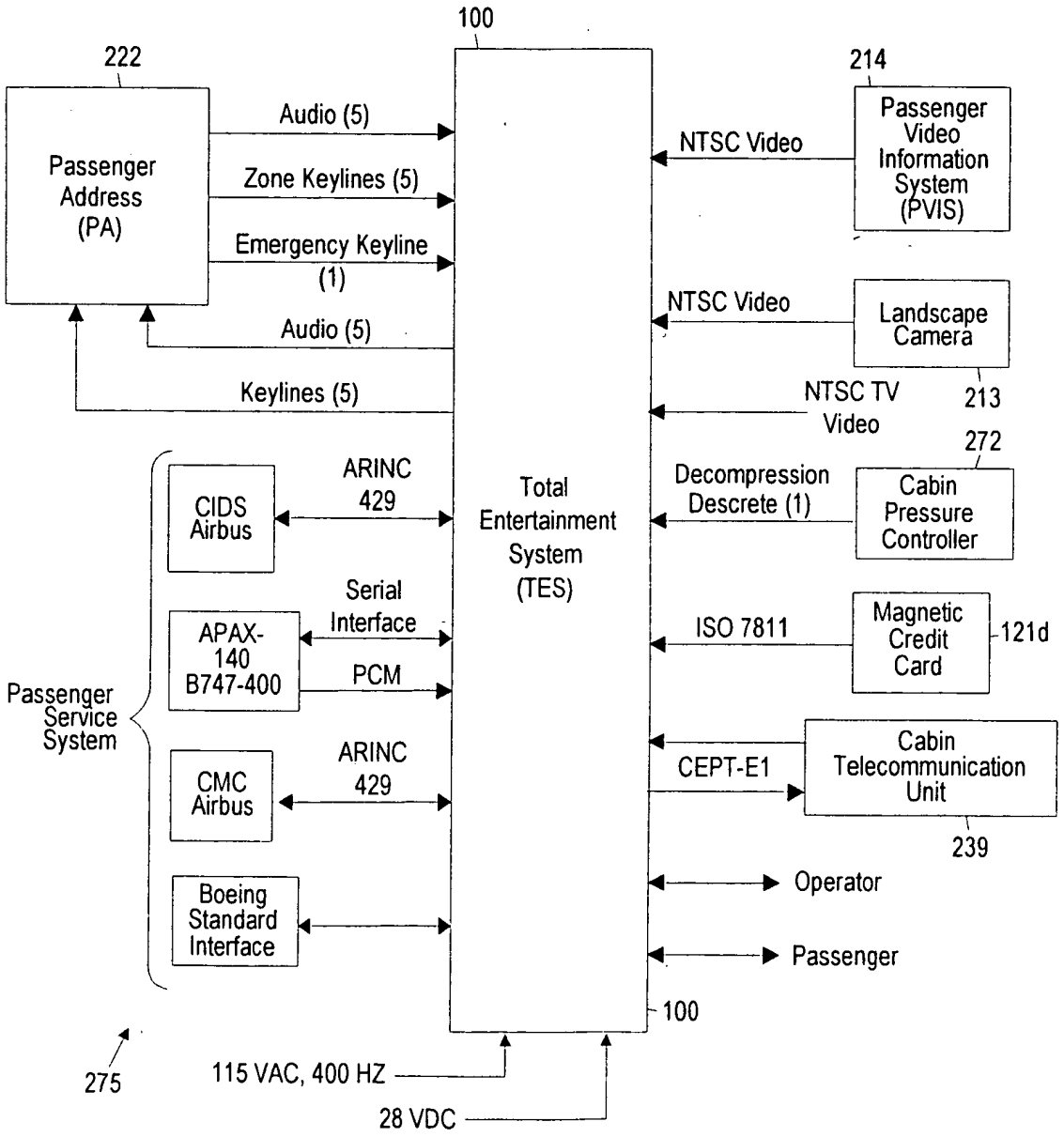

100
222
214
Passenger Address (PA)
Audio (5)
Zone Keylines (5)
Emergency Keyline (1)
Audio (5)
Keylines (5)
NTSC Video
Passenger Video Information System (PVIS)
NTSC Video
Landscape Camera
213
NTSC TV Video
272
Decompression Descrete (1)
Cabin Pressure Controller
ISO 7811
Magnetic Credit Card
121d
CEPT-E1
Cabin Telecommunication Unit
239
Operator
Passenger
100
Total Entertainment System (TES)
Passenger Service System
CIDS Airbus
ARINC 429
APAX-140 B747-400
Serial Interface
PCM
CMC Airbus
ARINC 429
Boeing Standard Interface
275
115 VAC, 400 HZ
28 VDC

Fig. 16a

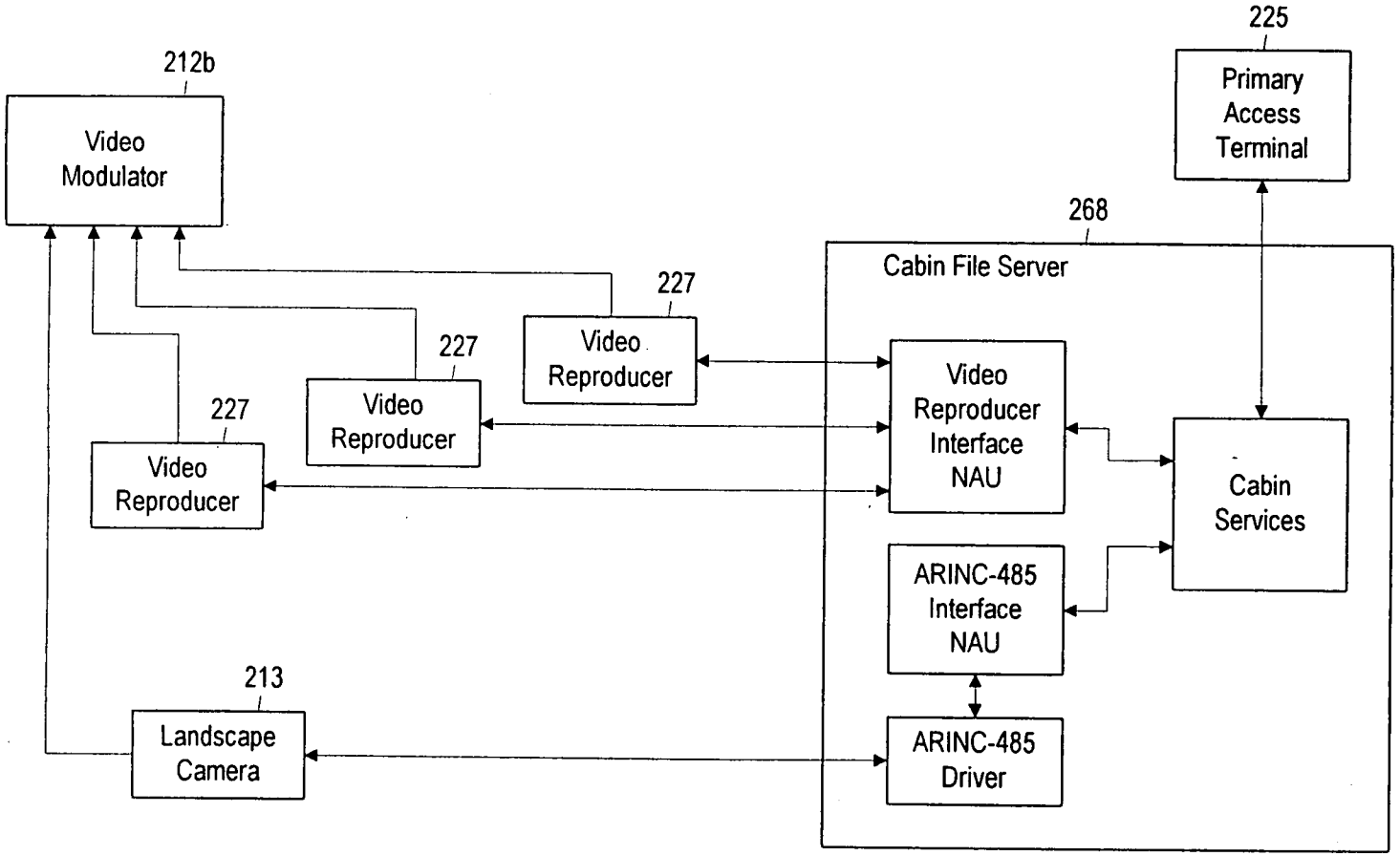
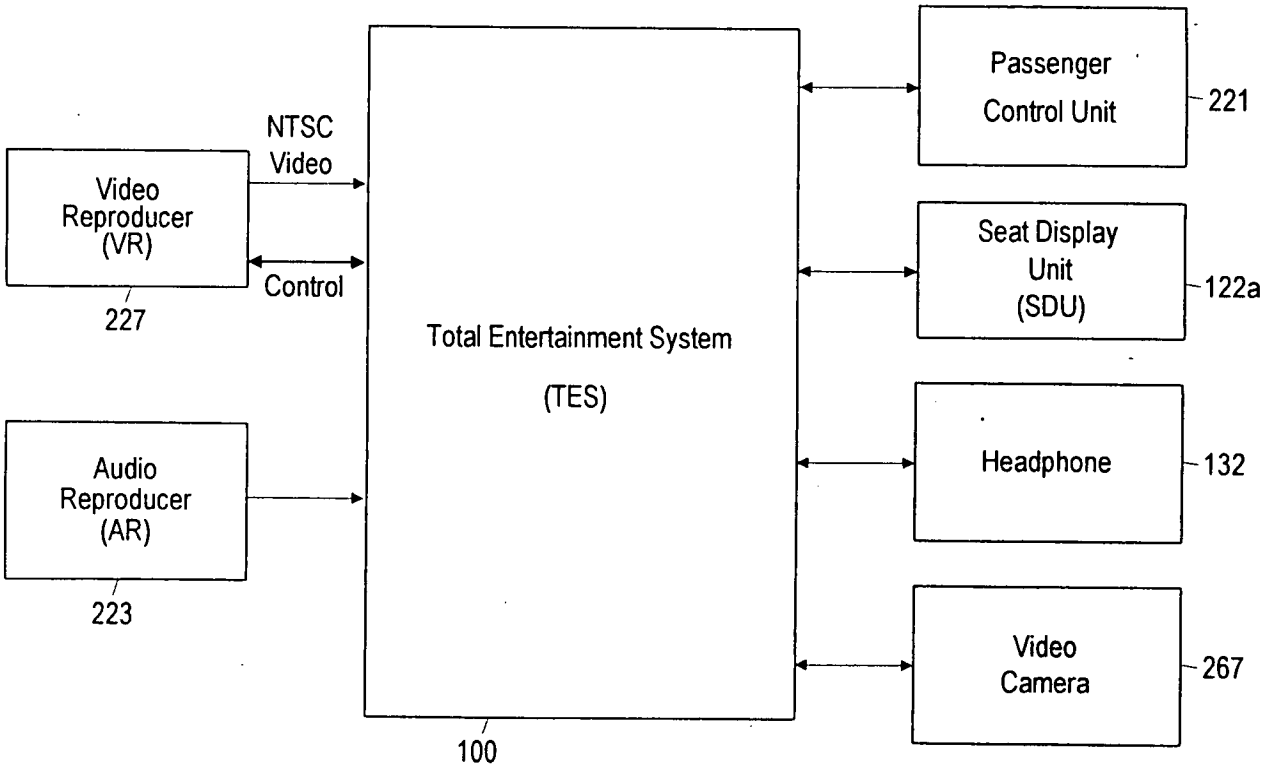

225
Primary Access Terminal
212b
Video Modulator
268
Cabin File Server
227
Video Reproducer
227
Video Reproducer
227
Video Reproducer
Video Reproducer Interface NAU
Cabin Services
ARINC-485 Interface NAU
213
Landscape Camera
ARINC-485 Driver

Fig. 17


Video Reproducer (VR)
227
NTSC Video
Control
Audio Reproducer (AR)
223
Total Entertainment System (TES)
100
Passenger Control Unit
221
Seat Display Unit (SDU)
122a
Headphone
132
Video Camera
267

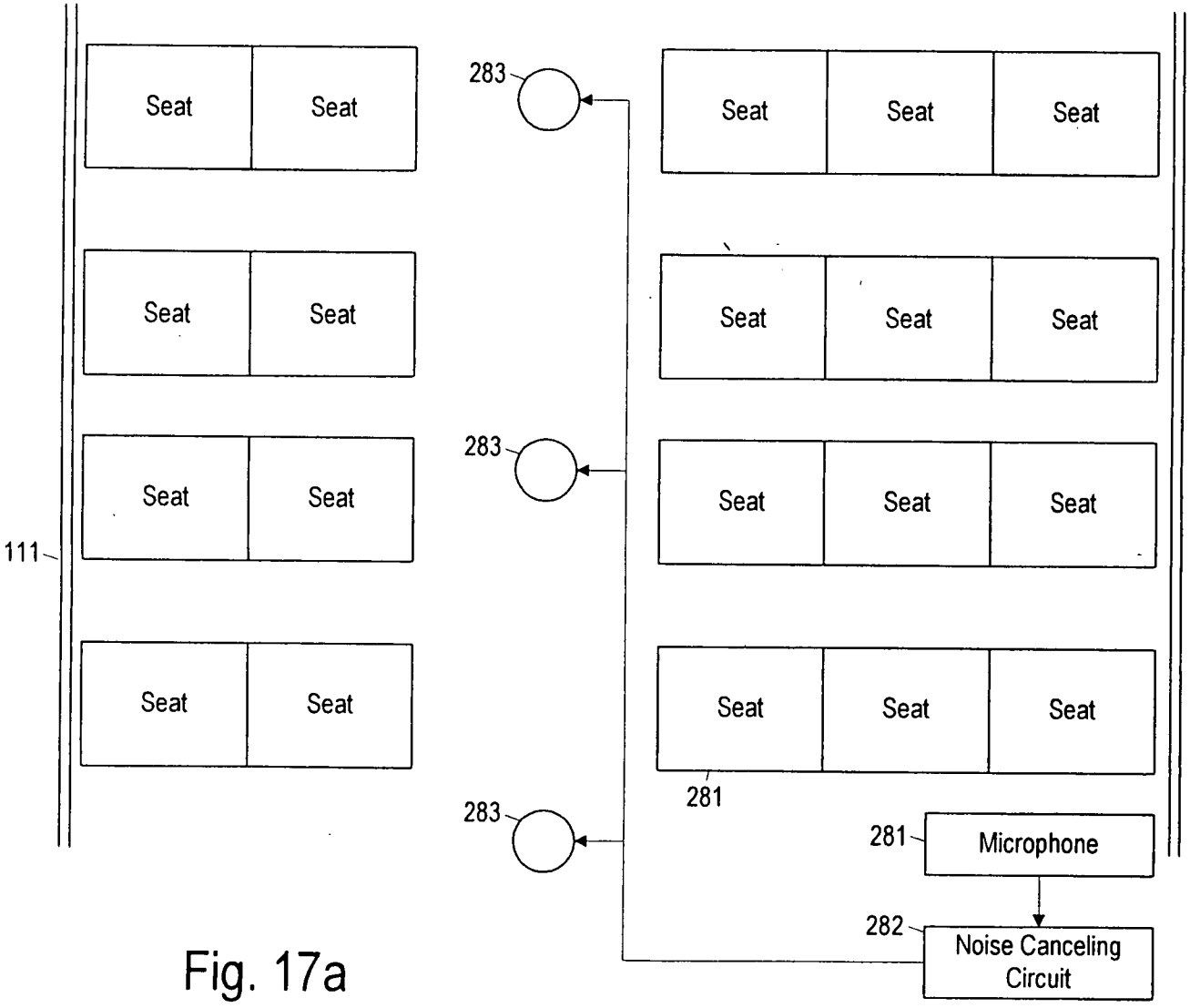

Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
283
283
283
111
281
281
Microphone
282
Noise Canceling Circuit
280

Fig. 17a

Fig. 18

TO ARCHIVE DATA EACH FLIGHT

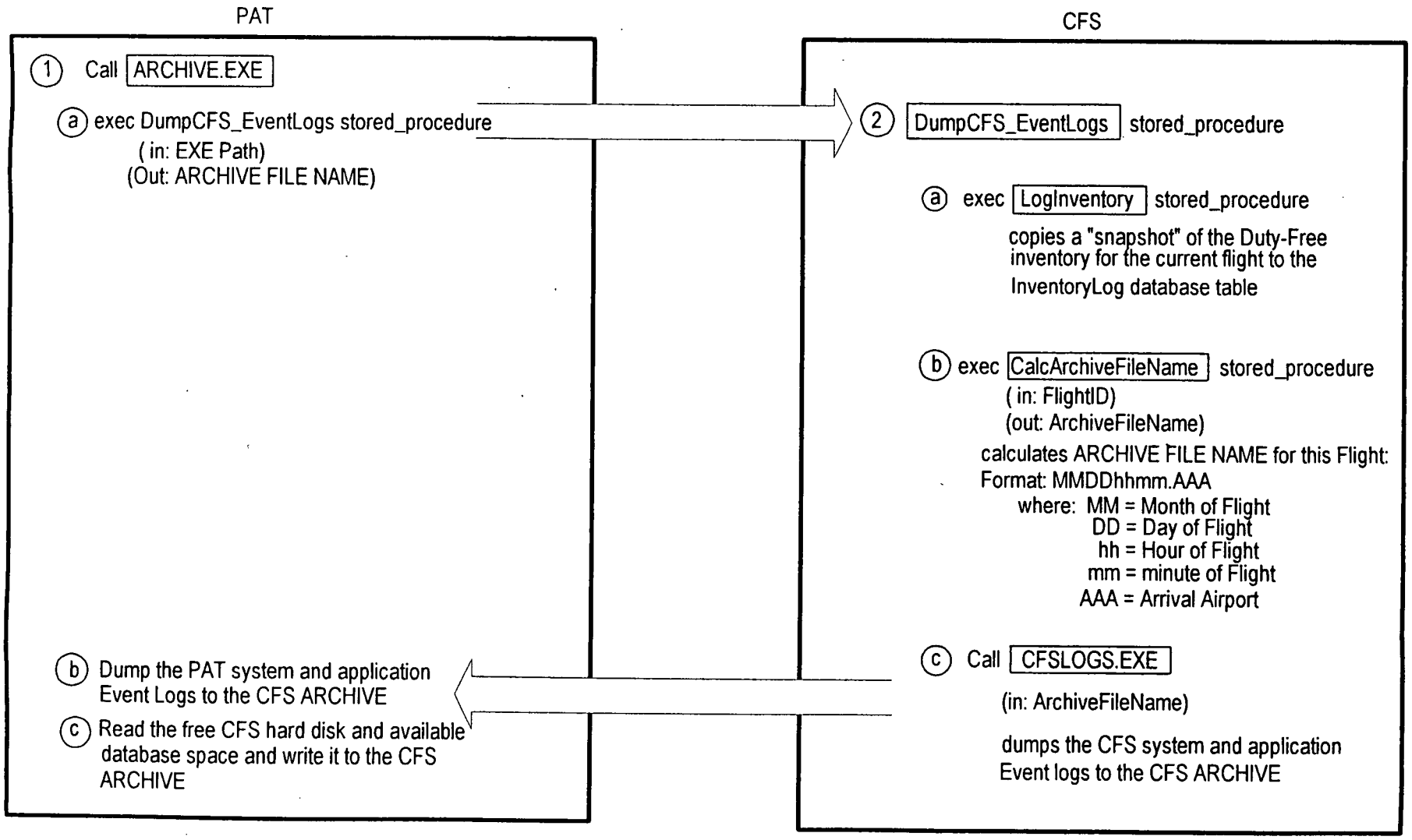


Fig. 19

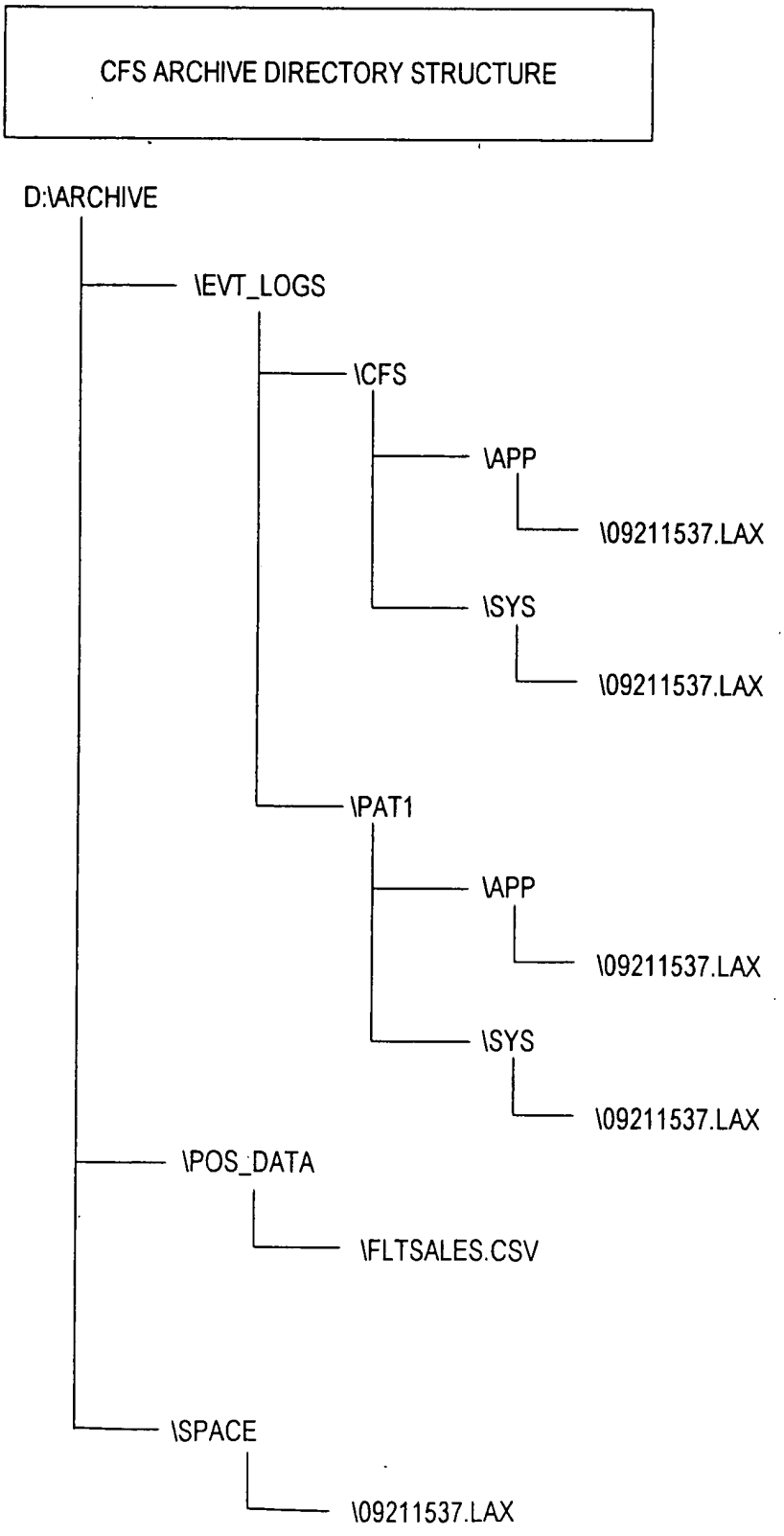
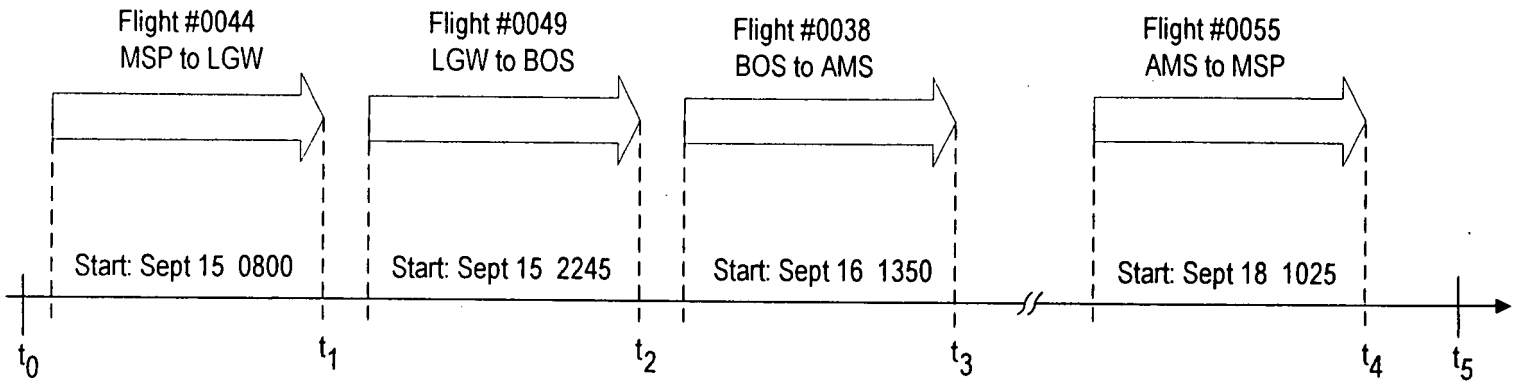

CFS ARCHIVE DIRECTORY STRUCTURE
D:\ARCHIVE
\EVT_LOGS
\CFS
\APP
\09211537.LAX
\SYS
\09211537.LAX
\PAT1
\APP
\09211537.LAX
\SYS
\09211537.LAX
\POS_DATA
\FLTSALES.CSV
\SPACE
\09211537.LAX

Fig. 20

EXAMPLE SCENARIO

At the "end" of each flight, the four event logs and the SQL Errorlog are "archived" on the CFS hard disk. When the "Offload" is performed, the FLTSALES.CSV file containing the point-of-sale data is generated and then "zipped" together with the corresponding "archived" logs for each flight that has not been previously "Offloaded".



t_1 = Archive Files: 09150800.LGW
t_2 = Archive Files: 09152245.BOS
t_3 = Archive Files: 09161350.AMS
t_4 = Archive Files: 09181025.MSP

t_5 = "Data Offload"
Zip File 1: 0044LGW.258
Zip File 2: 0049BOS.258
Zip File 3: 0038AMS.259
Zip File 4: 0055MSP.261

A 294,952 byte event log zips down to 18,658 bytes. A flight with 1500 orders (600 cash, 900 credit card) generates an 184,842 byte data file, which zips down to 2,373 bytes. Allowing 80 Kb for the four event logs [note: they should actually be much less since they are cleared out each flight] and 5 Kb for the data file, this means that 16 flights could be "Offloaded" on a single diskette. It took 10 seconds to "archive" the four event logs and 1 min 10 seconds to "Offload" to the hard drive.

Fig. 21

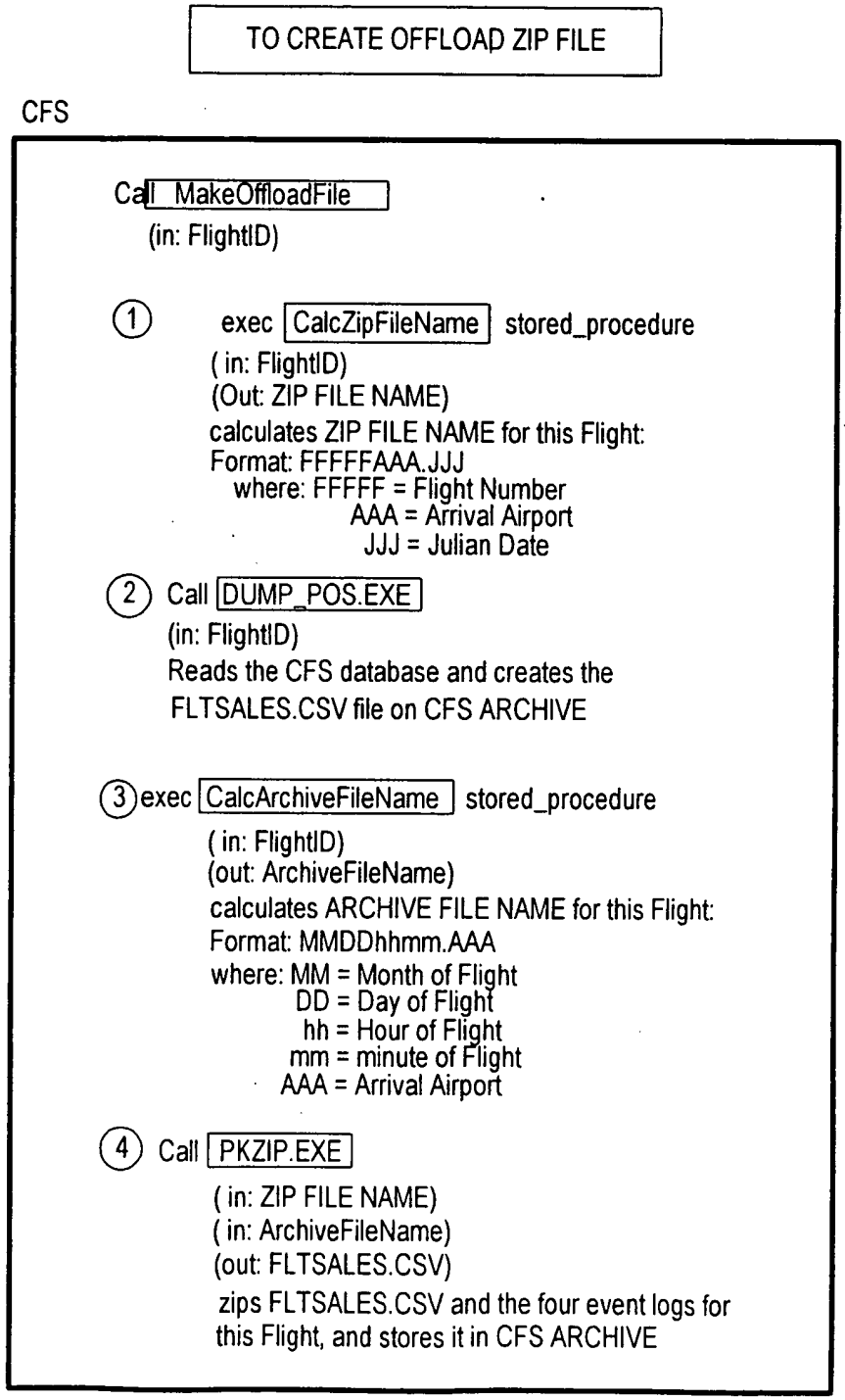


Fig. 22

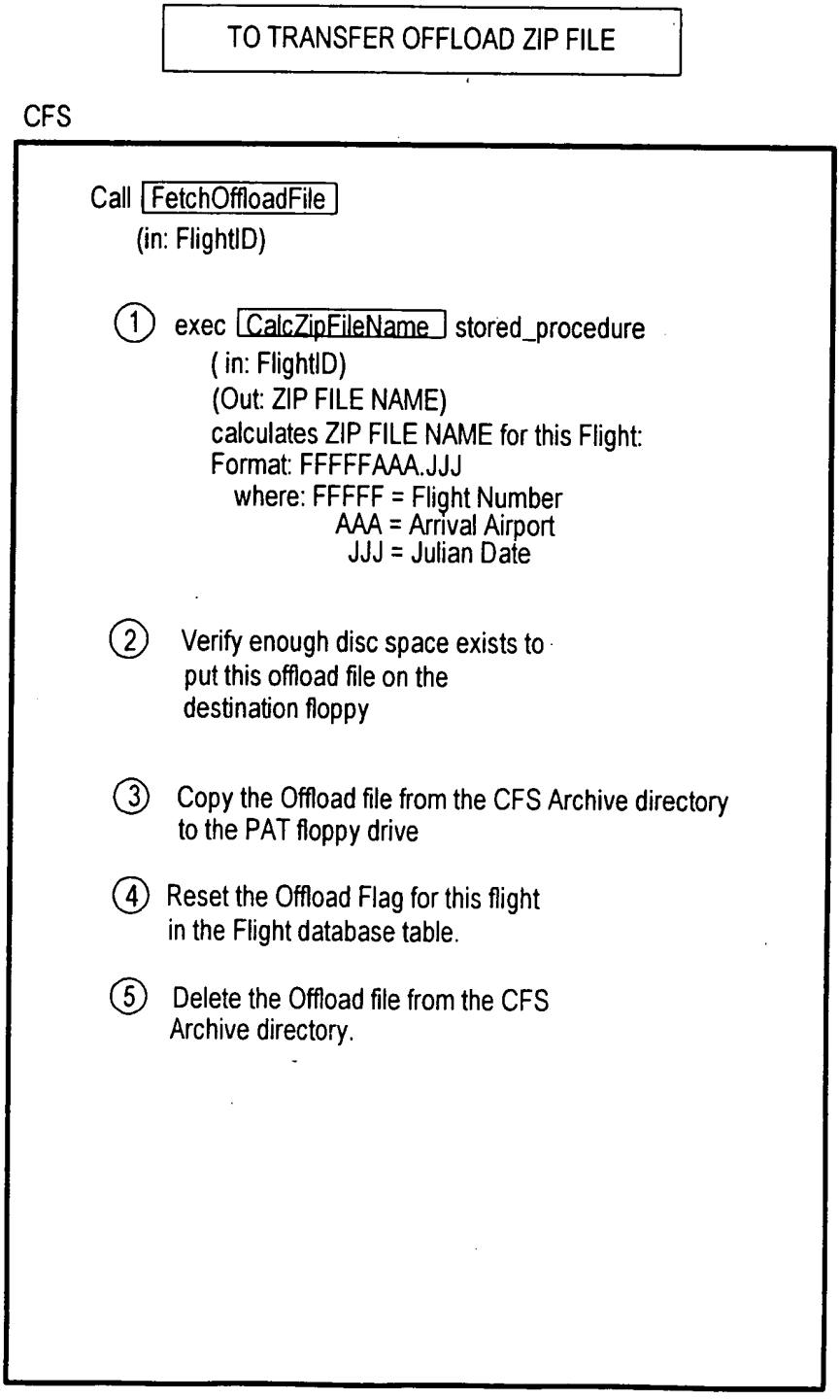

TO TRANSFER OFFLOAD ZIP FILE
CFS
Call FetchOffloadFile
(in: FlightID)
1 exec CalcZipFileName stored_procedure
(in: FlightID)
(Out: ZIP FILE NAME)
calculates ZIP FILE NAME for this Flight:
Format: FFFFFAAA.JJJ
where: FFFFF = Flight Number
AAA = Arrival Airport
JJJ = Julian Date
2 Verify enough disc space exists to put this offload file on the destination floppy
3 Copy the Offload file from the CFS Archive directory to the PAT floppy drive
4 Reset the Offload Flag for this flight in the Flight database table.
5 Delete the Offload file from the CFS Archive directory.

Fig. 23

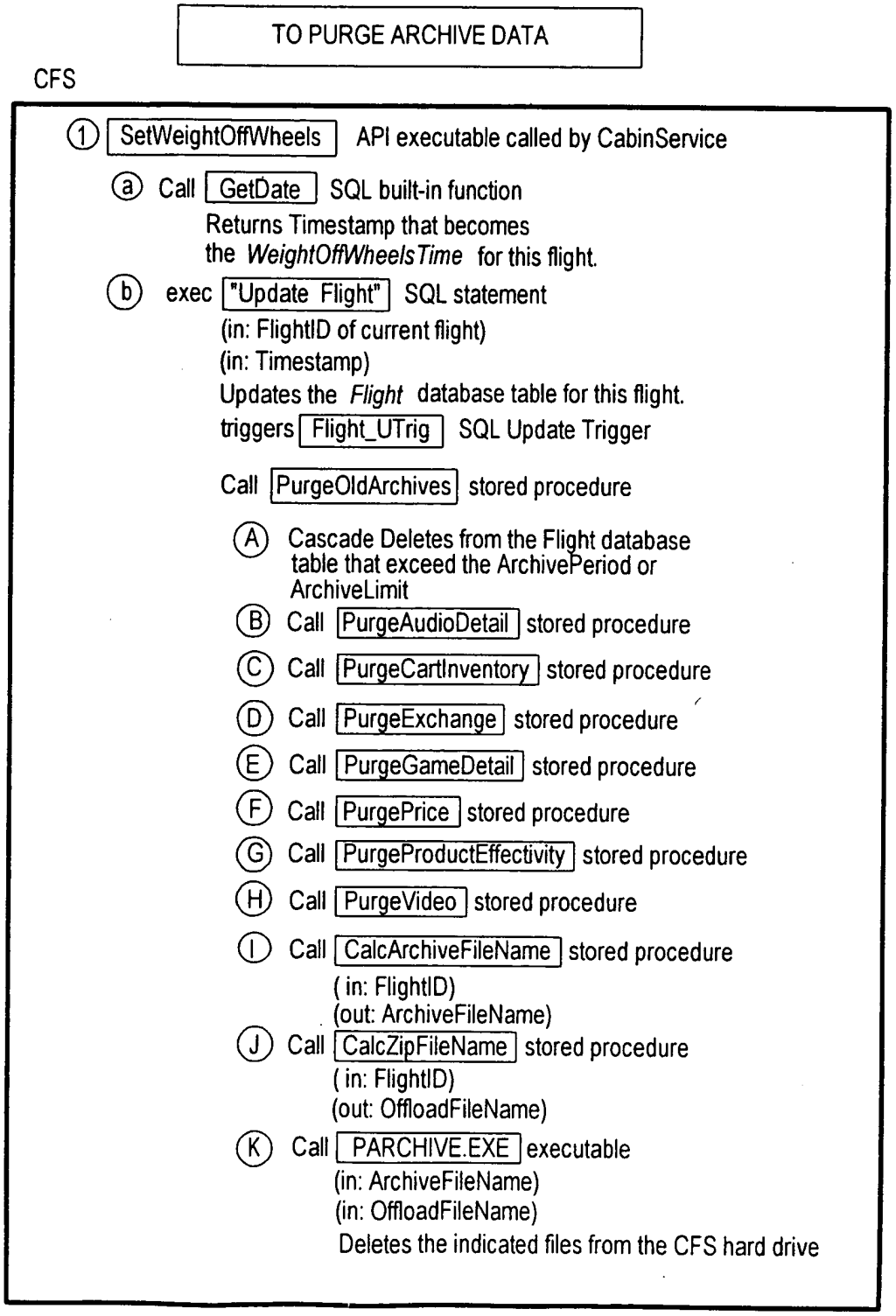


Fig. 24

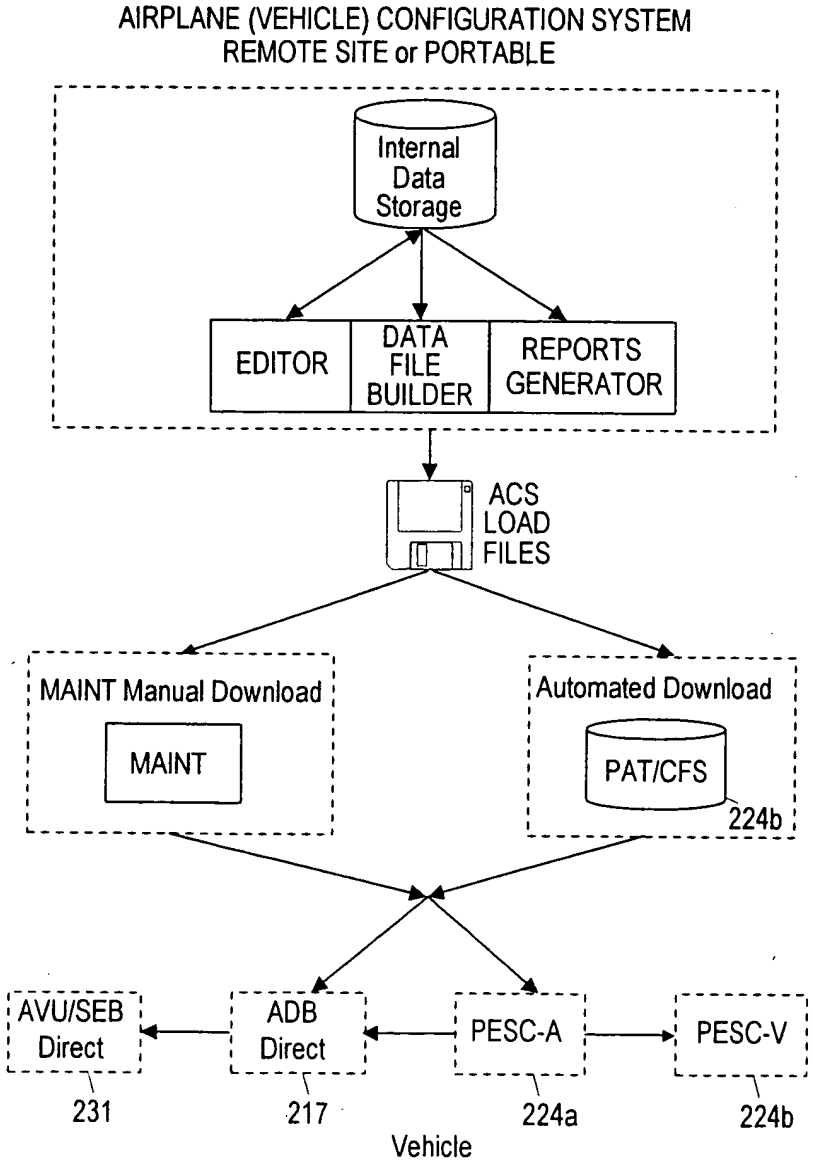

AIRPLANE (VEHICLE) CONFIGURATION SYSTEM
REMOTE SITE or PORTABLE
Internal Data Storage
EDITOR
DATA FILE BUILDER
REPORTS GENERATOR
ACS LOAD FILES
MAINT Manual Download
MAINT
Automated Download
PAT/CFS
224b
AVU/SEB Direct
ADB Direct
PESC-A
PESC-V
231
217
224a
224b
Vehicle

Fig. 25a

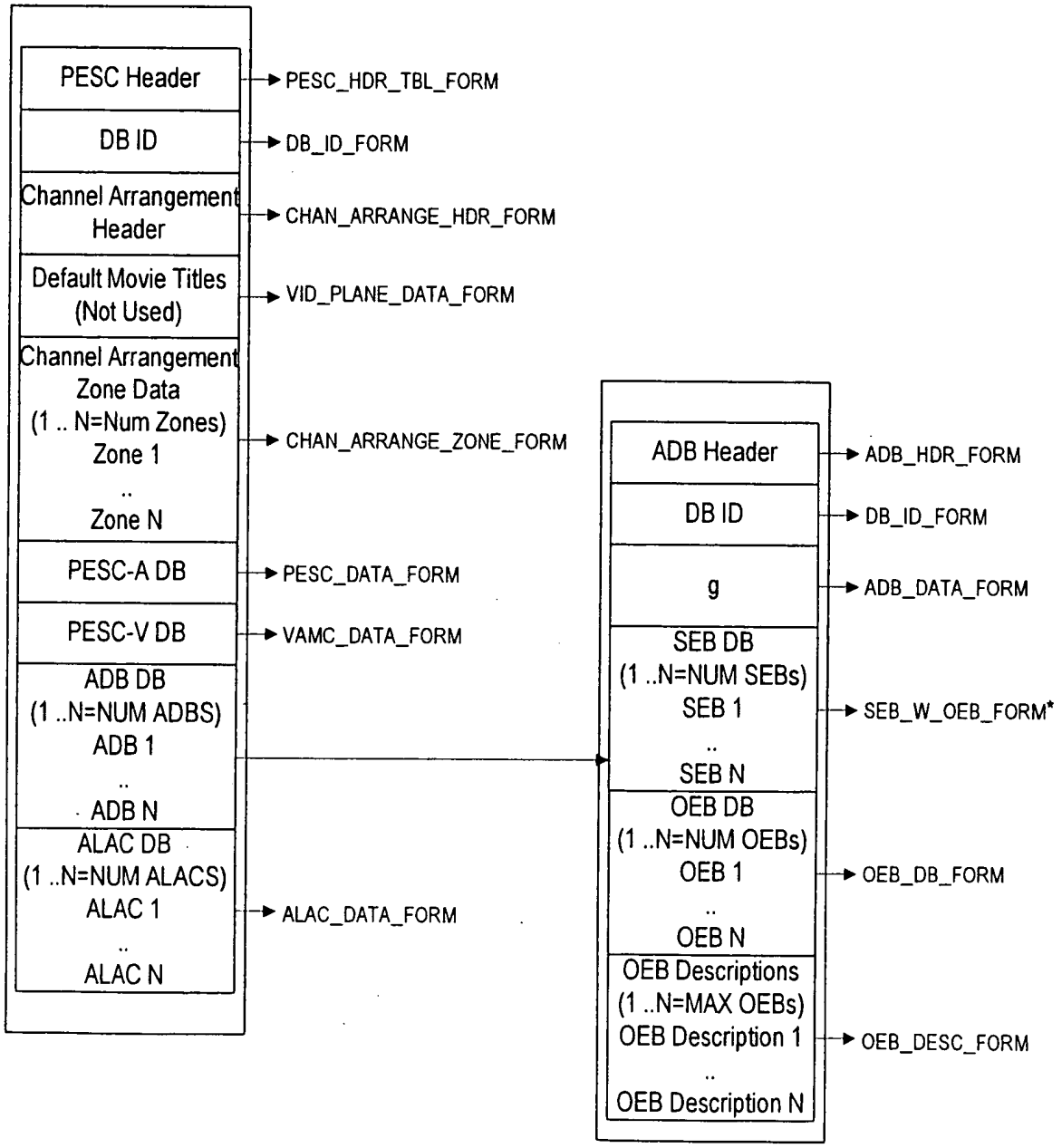

PESC Header
PESC_HDR_TBL_FORM
DB ID
DB_ID_FORM
Channel Arrangement Header
CHAN_ARRANGE_HDR_FORM
Default Movie Titles (Not Used)
VID_PLANE_DATA_FORM
Channel Arrangement Zone Data
(1 .. N=Num Zones)
Zone 1
..
Zone N
CHAN_ARRANGE_ZONE_FORM
PESC-A DB
PESC_DATA_FORM
PESC-V DB
VAMC_DATA_FORM
ADB DB
(1 ..N=NUM ADBS)
ADB 1
..
ADB N
ALAC DB
(1 ..N=NUM ALACS)
ALAC 1
..
ALAC N
ALAC_DATA_FORM
ADB Header
ADB_HDR_FORM
DB ID
DB_ID_FORM
g
ADB_DATA_FORM
SEB DB
(1 ..N=NUM SEBs)
SEB 1
..
SEB N
SEB_W_OEB_FORM*
OEB DB
(1 ..N=NUM OEBs)
OEB 1
..
OEB N
OEB_DB_FORM
OEB Descriptions
(1 ..N=MAX OEBs)
OEB Description 1
..
OEB Description N
OEB_DESC_FORM

Fig. 25b

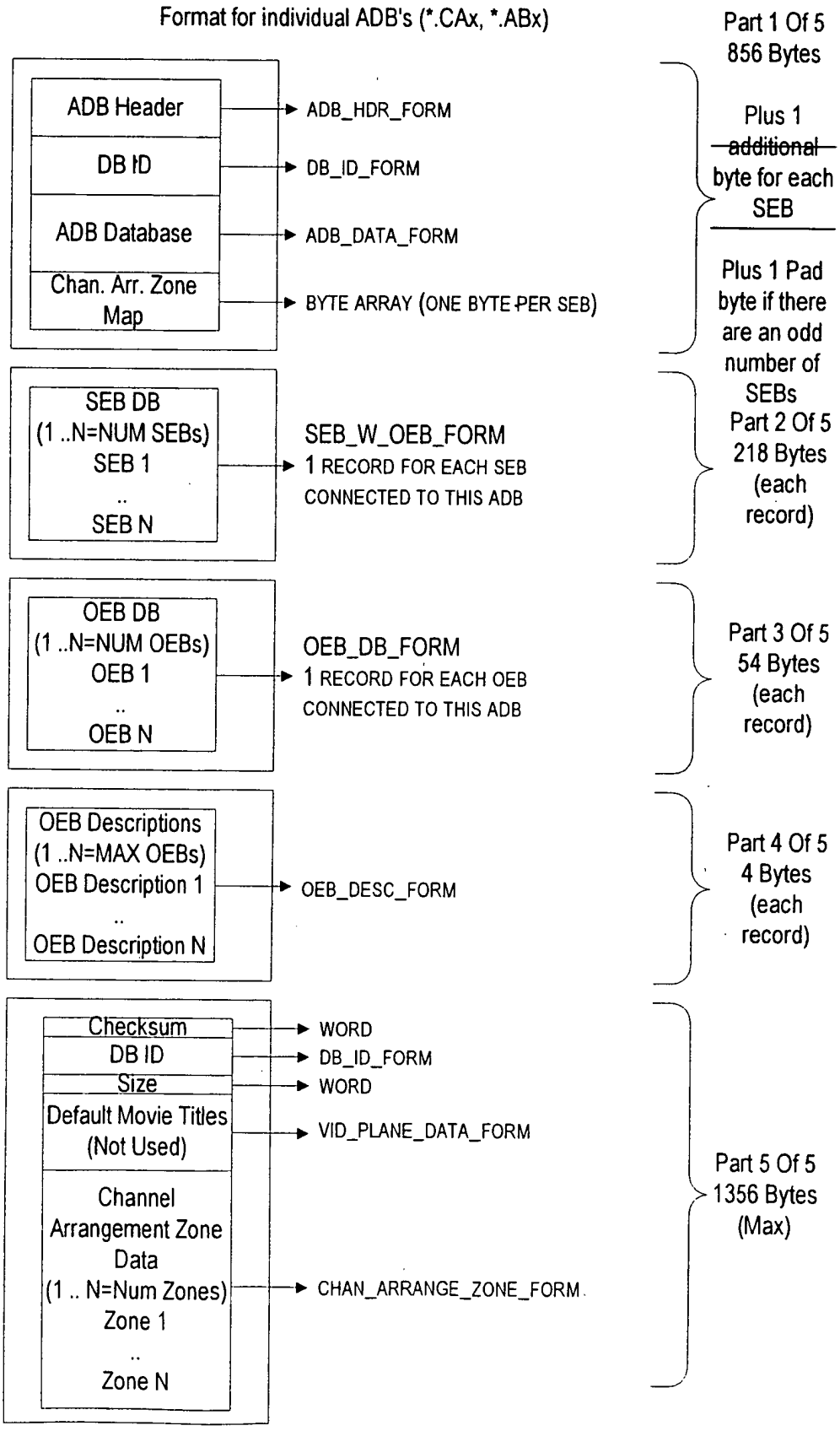
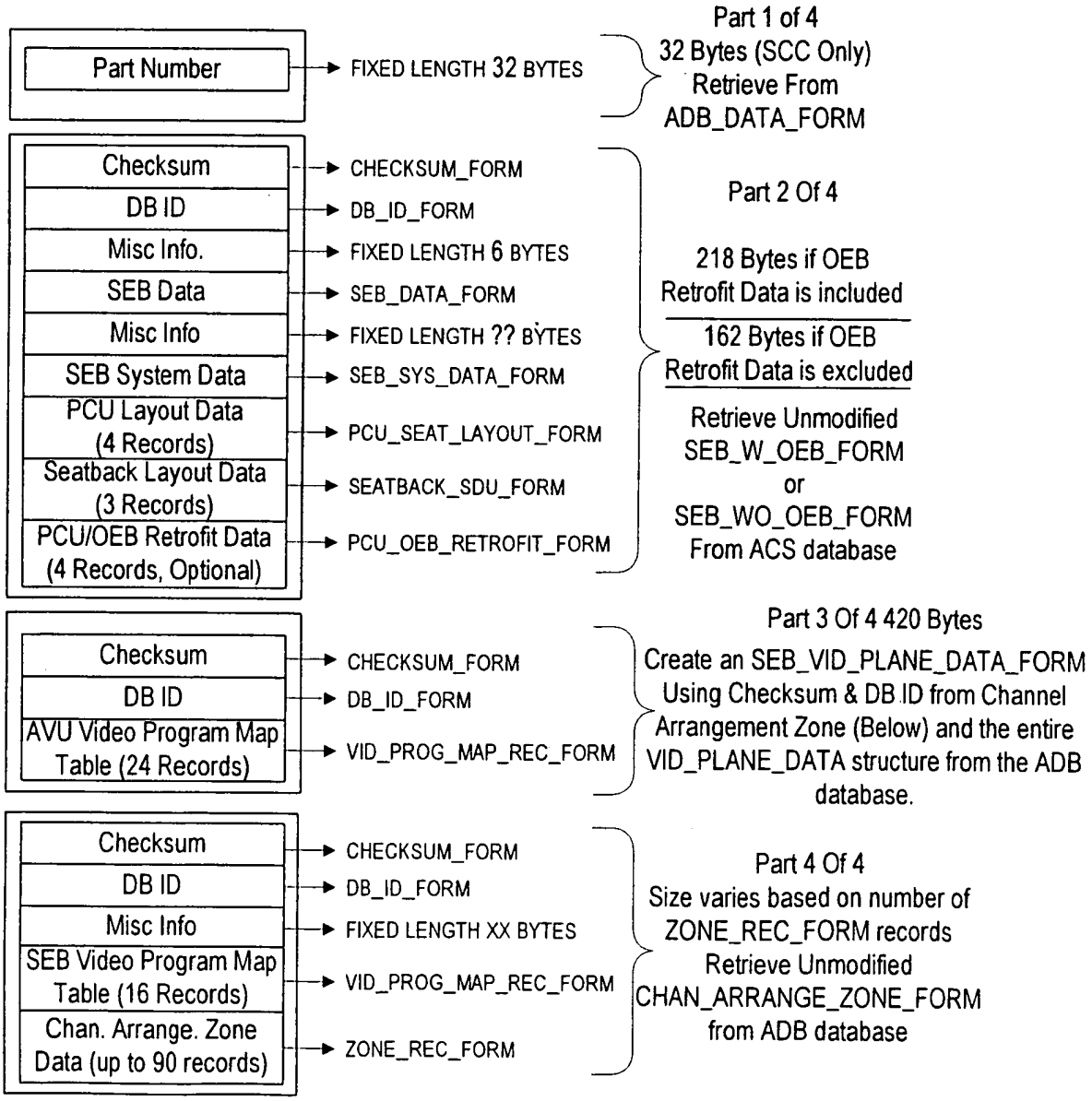

ACS Database
Format for individual ADB's (*.CAx, *.ABx)
ADB Header
DB ID
ADB Database
Chan. Arr. Zone Map
ADB_HDR_FORM
DB_ID_FORM
ADB_DATA_FORM
BYTE ARRAY (ONE BYTE PER SEB)
Part 1 Of 5
856 Bytes
Plus 1 additional byte for each SEB
Plus 1 Pad byte if there are an odd number of SEBs
SEB DB
(1 ..N=NUM SEBs)
SEB 1
..
SEB N
SEB_W_OEB_FORM
1 RECORD FOR EACH SEB CONNECTED TO THIS ADB
Part 2 Of 5
218 Bytes
(each record)
OEB DB
(1 ..N=NUM OEBs)
OEB 1
..
OEB N
OEB_DB_FORM
1 RECORD FOR EACH OEB CONNECTED TO THIS ADB
Part 3 Of 5
54 Bytes
(each record)
OEB Descriptions
(1 ..N=MAX OEBs)
OEB Description 1
..
OEB Description N
OEB_DESC_FORM
Part 4 Of 5
4 Bytes
(each record)
Checksum
DB ID
Size
Default Movie Titles (Not Used)
Channel Arrangement Zone Data
(1 .. N=Num Zones)
Zone 1
..
Zone N
WORD
DB_ID_FORM
WORD
VID_PLANE_DATA_FORM
CHAN_ARRANGE_ZONE_FORM
Part 5 Of 5
1356 Bytes
(Max)

Fig. 25c

ACS Database
Format for individual SEB's
This file is constructed by ADBs/ACCs



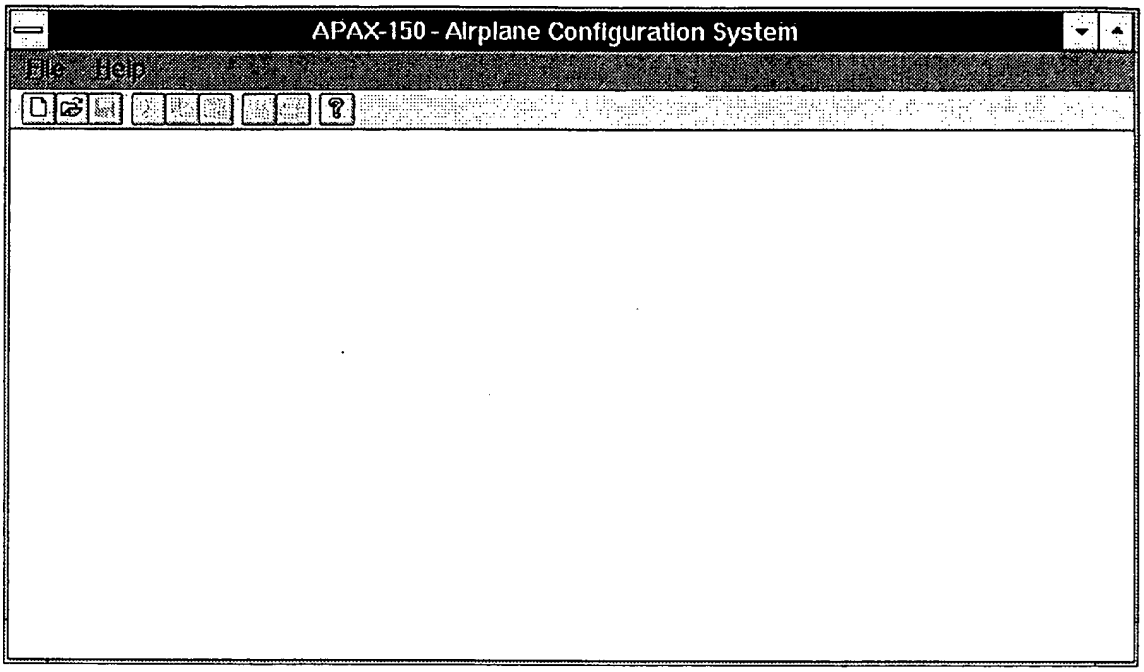


Fig. 26-1

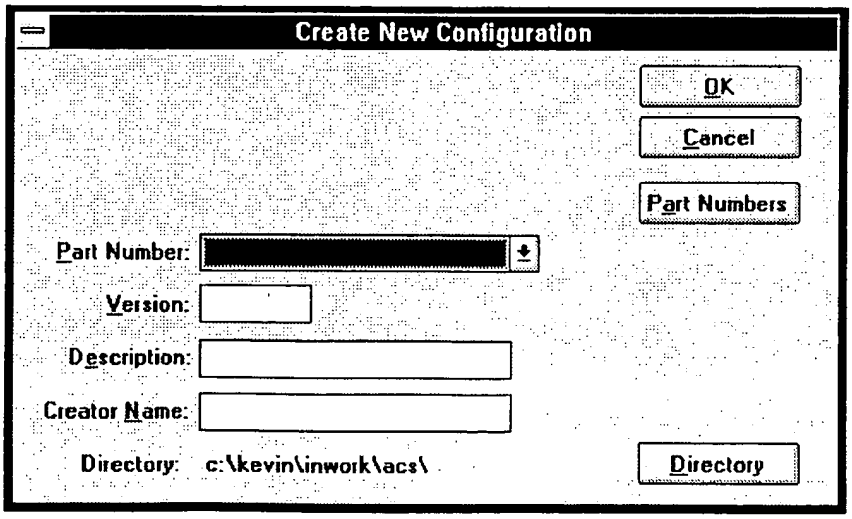


Fig. 26-2

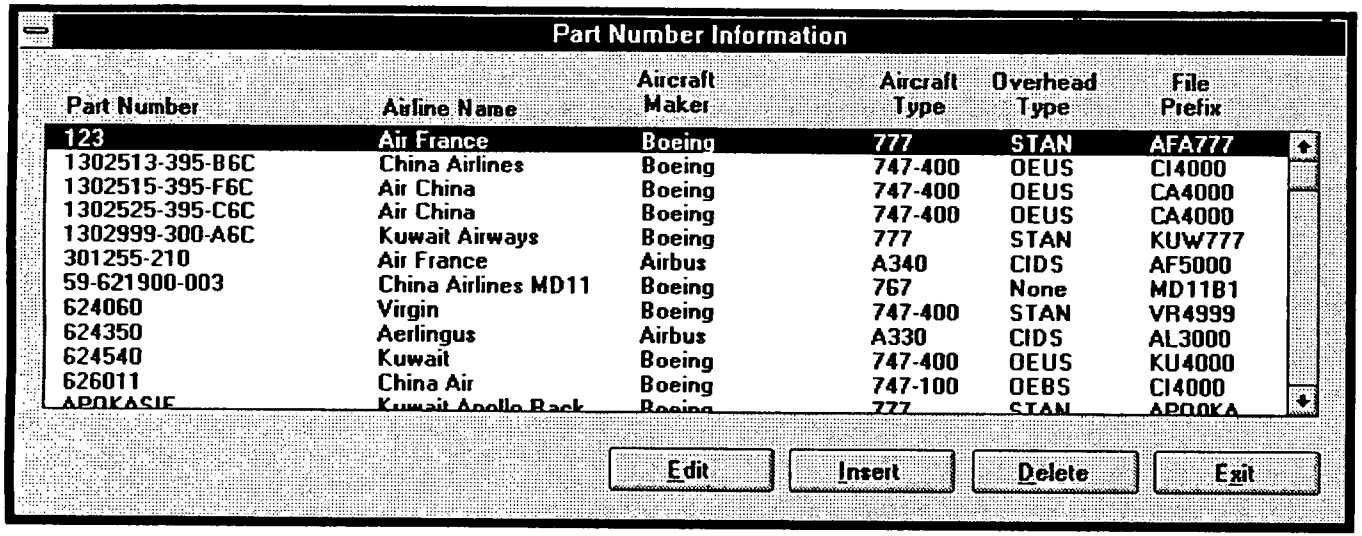


Fig. 26-3

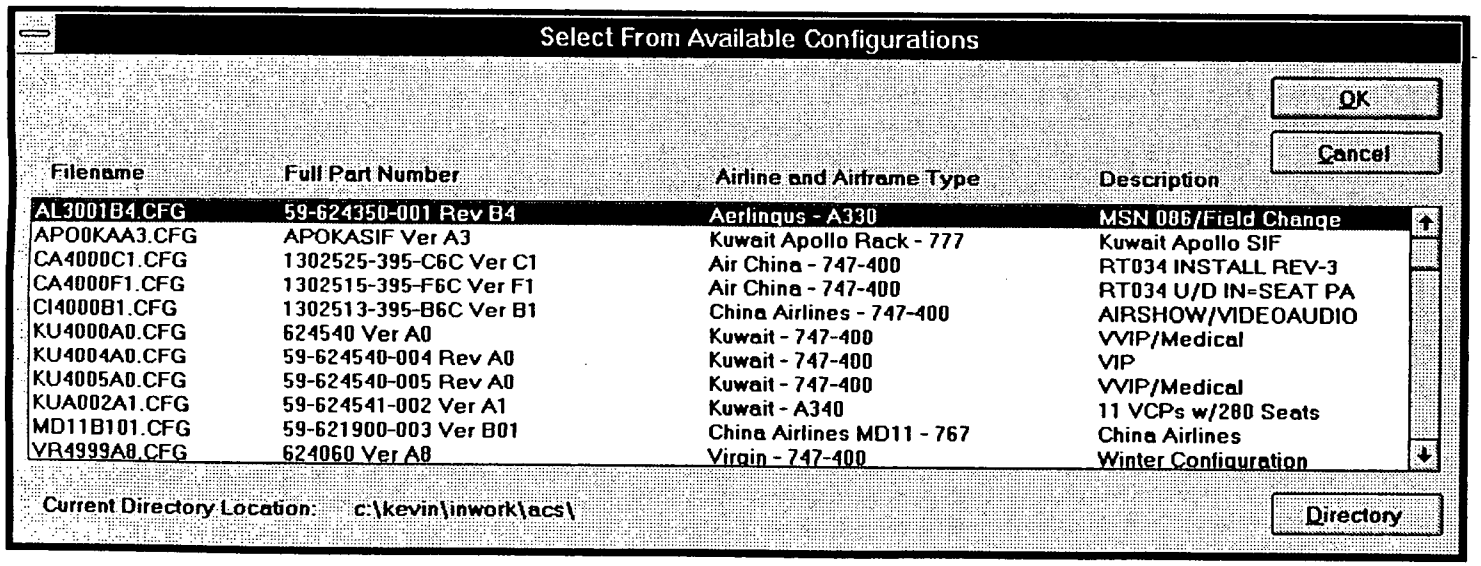


Fig. 26-5

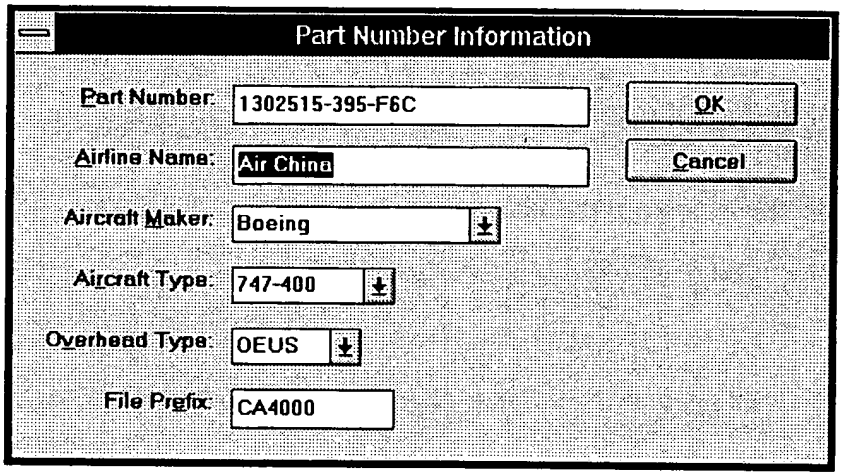


Fig. 26-4

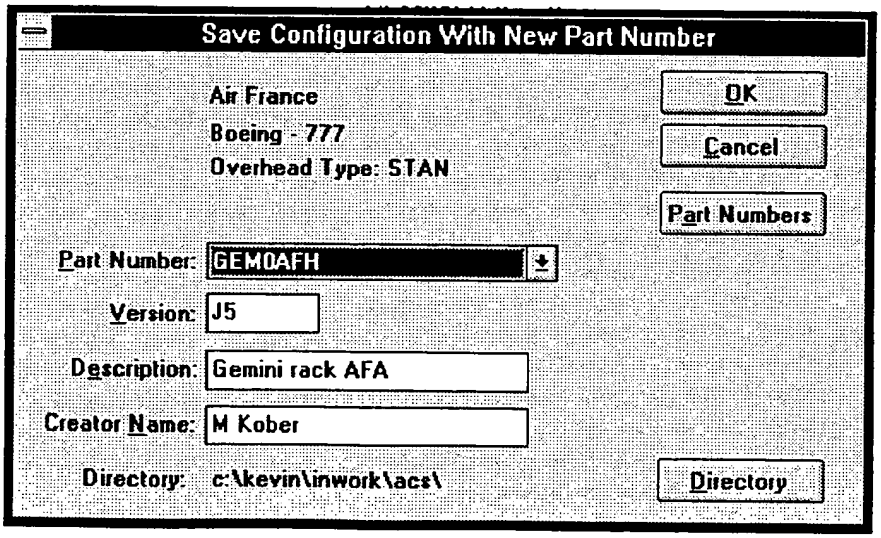


Fig. 26-6

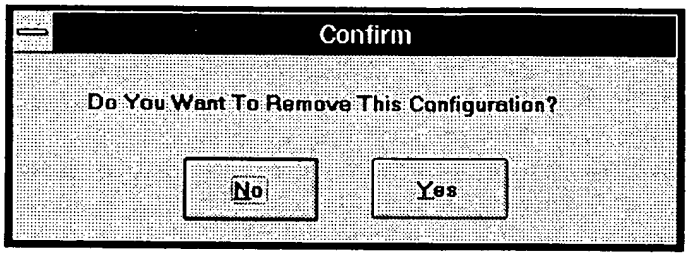


Fig. 26-7

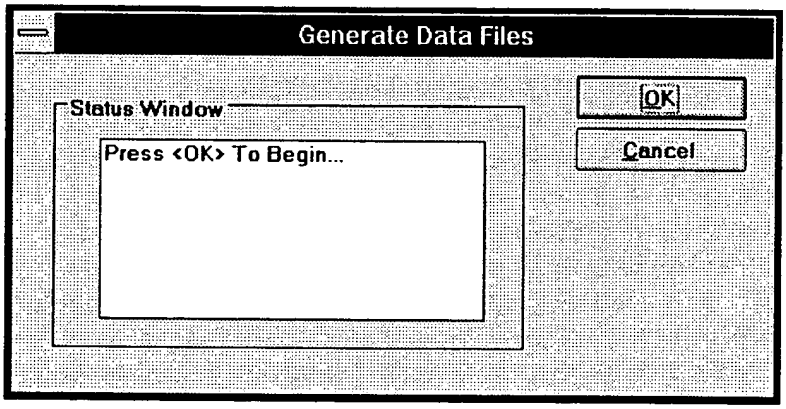


Fig. 26-8

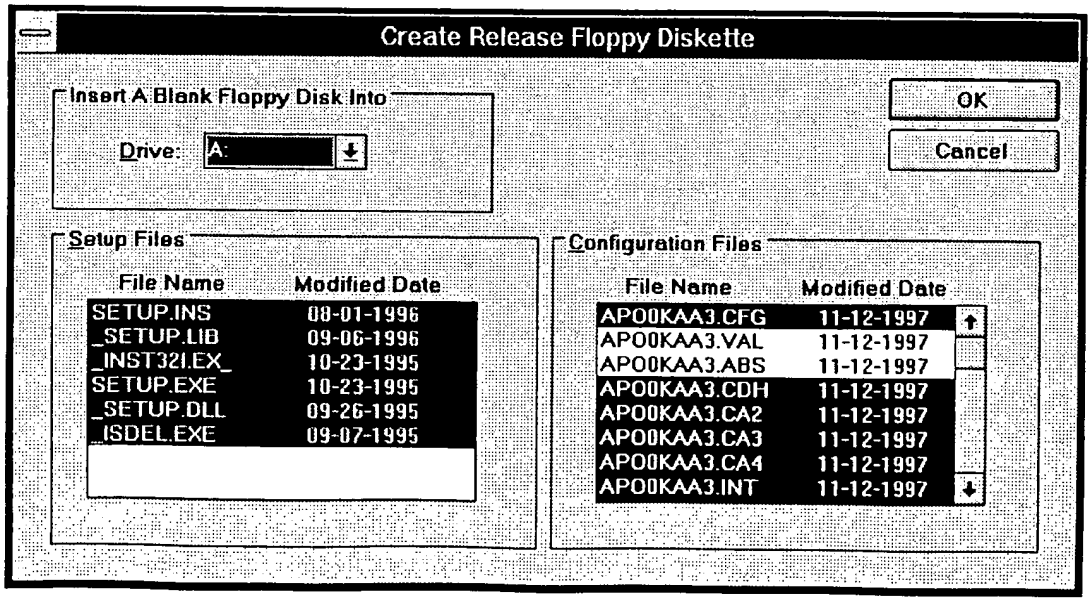


Fig. 26-9

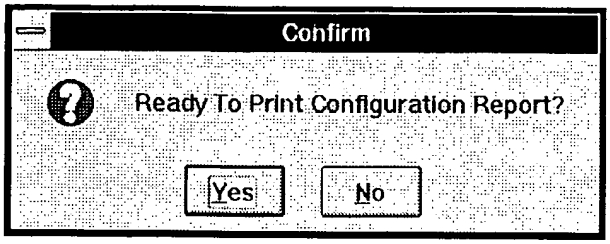


Fig. 26-10

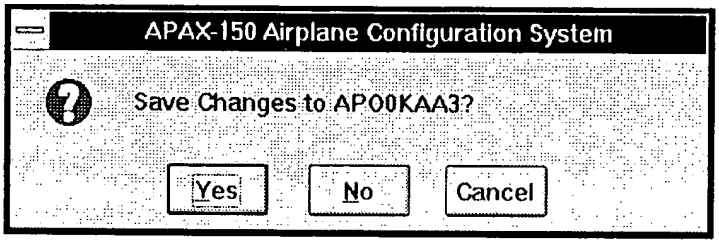


Fig. 26-11

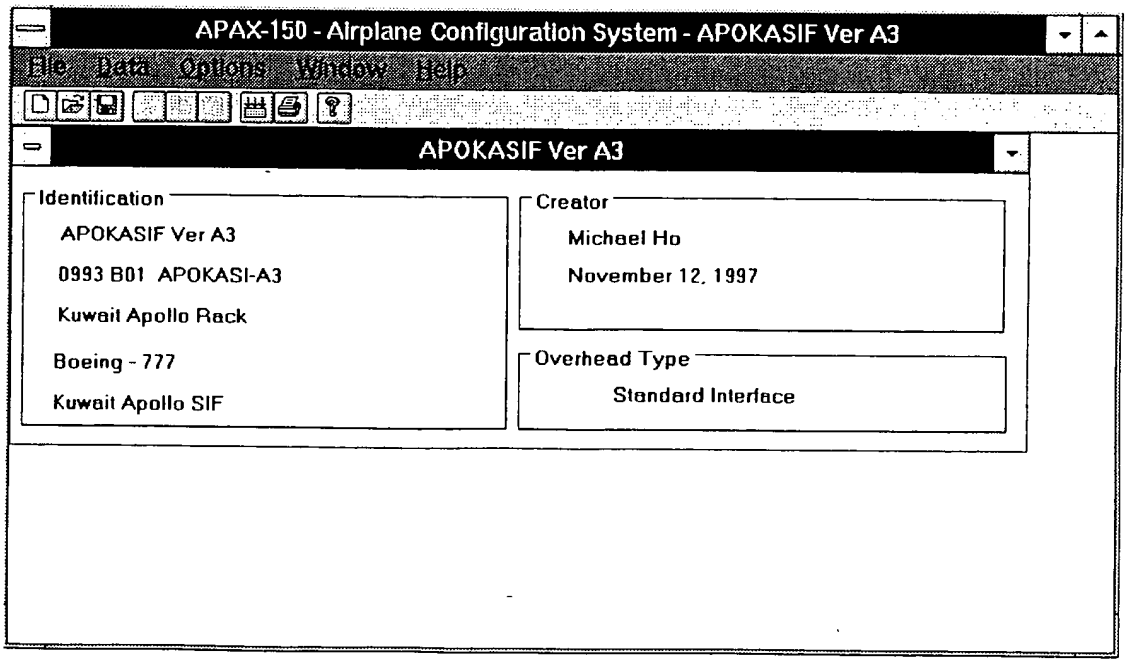


Fig. 26-12

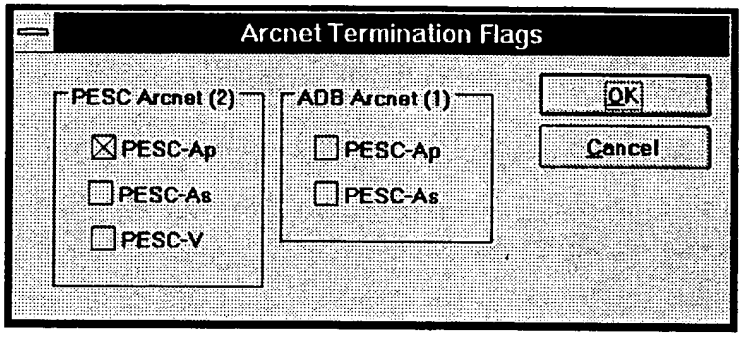


Fig. 26-13

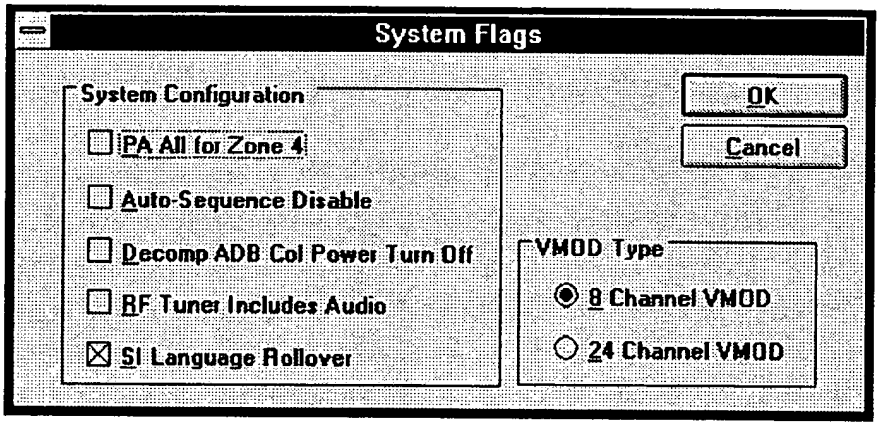


Fig. 26-14

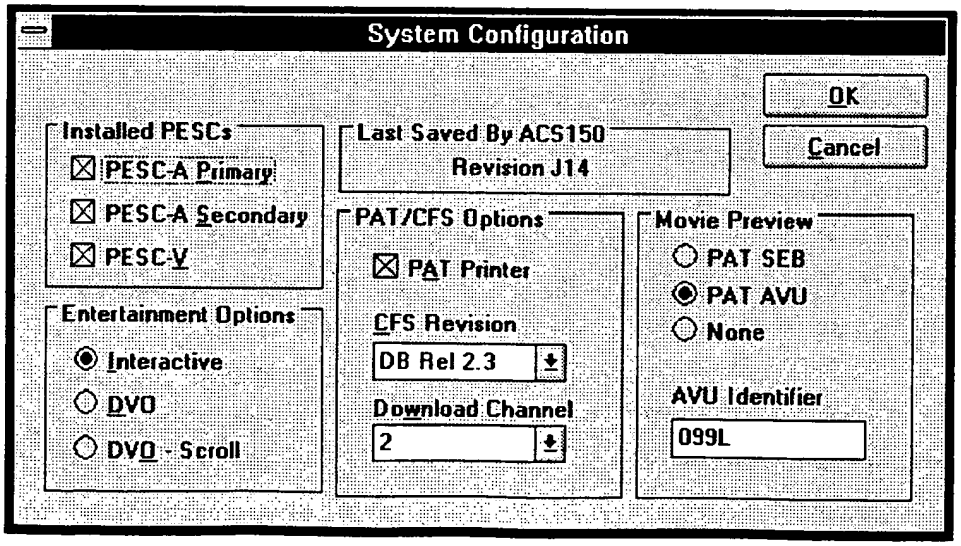


Fig. 26-15

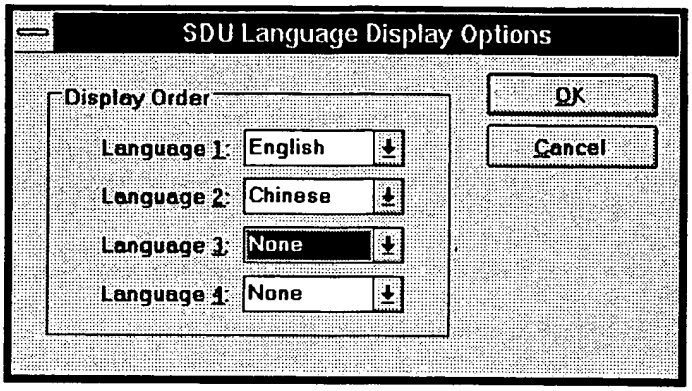


Fig. 26-16

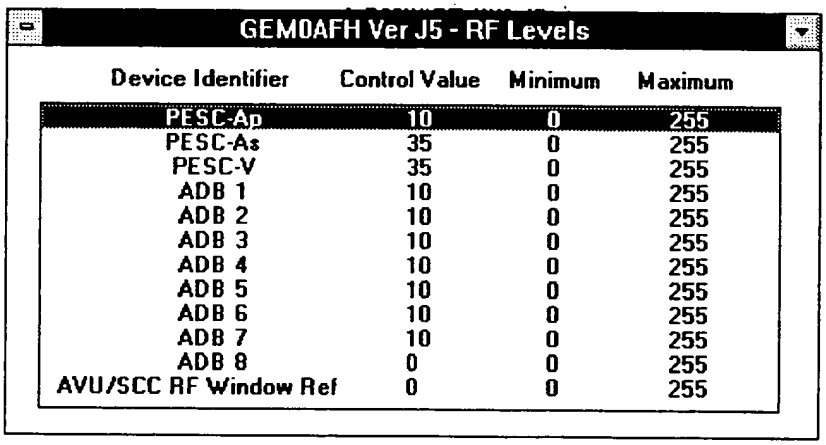


Fig. 26-17

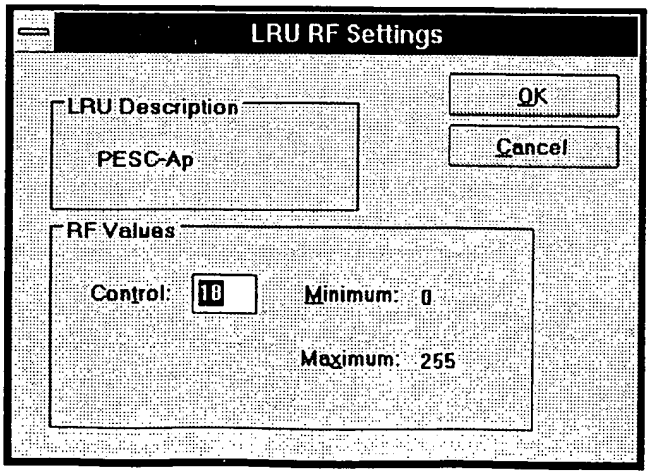


Fig. 26-18

APOKASIF Ver A3 - Seating Arrangements

ADB Number: ADB 1 | Seat Column: J6=Column 1 | Type: SEB

SEB ..	Seat Row Id (01-97,C1,C2)	FDB	Column Location	Seat Letters J3 J4 J5 J6	PCU Output J3 J4 J5 J6	SDU Output J7 J8 J9	Phone J3 J4 J5
1	11	1	OL	A	Y	Y	Y
2	11	1	OL	C	Y	Y	
3							
4							
5							
6							
7							
8							
9							

Fig. 26-19

SEB Configuration

Location: ADB 1 | Column 4 | Seat Box 1

OK

Cancel

Identification

Seat Row Id: 14

Location: OL

FDB: FDB 1

Seat Letters: A B

Seat Box Capability

PCU Outputs J3 J4 J5 J6	SDU Outputs J7 J8 J9	Phone J3 J4 J5
☒ ☒ ☐ ☐	☒ ☒ ☐	☒ ☒ ☐

Fig. 26-20

GEM0AFH Ver J5 - Seating Arrangements

ADB Number: ADB 1 | Seat Column: J5=Column 2 | Type: AVU

SCC ..	Seat Row Id (01-97,C1,C2)	FDB	Column Location	Seat Letter	PCU Output	SDU Output	Phone
1	12	-	OL	A	Y	Y	Y
2	12	-	OL	B	Y	Y	Y
3	12	-	OL	C	Y	Y	Y
4	12	-	CNTR	D	Y	Y	Y
5	12	-	CNTR	E	Y	Y	Y
6	12	-	CNTR	F	Y	Y	Y
7	12	-	CNTR	G	Y	Y	Y
8	12	-	CNTR	H	Y	Y	Y
9	12	-	CNTR	I	Y	Y	Y

Fig. 26-21

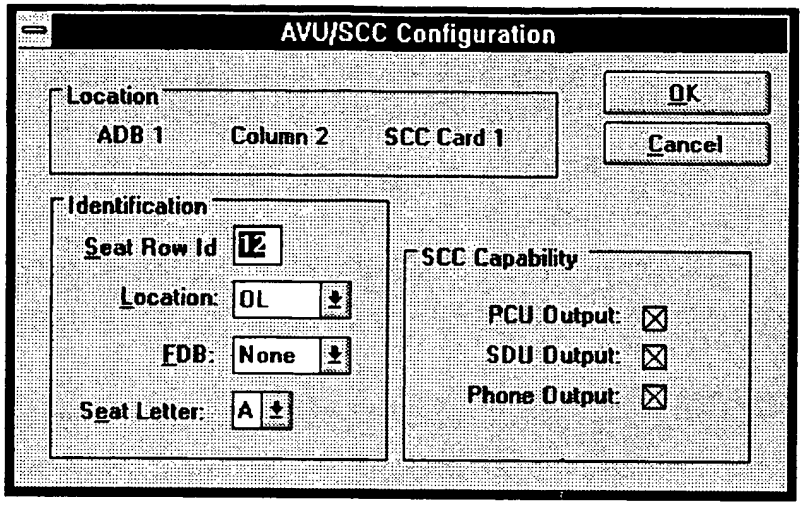


Fig. 26-22

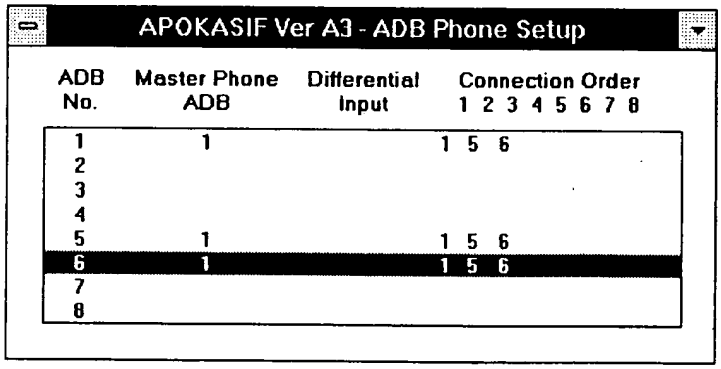


Fig. 26-23

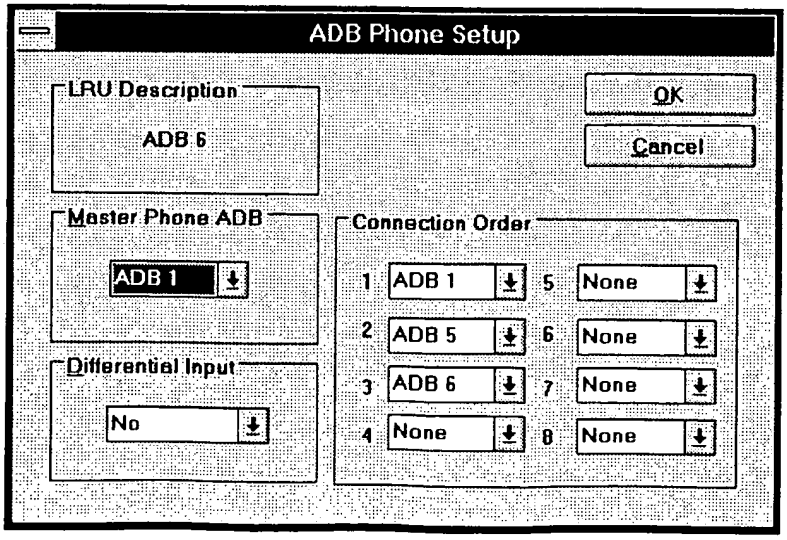


Fig. 26-24

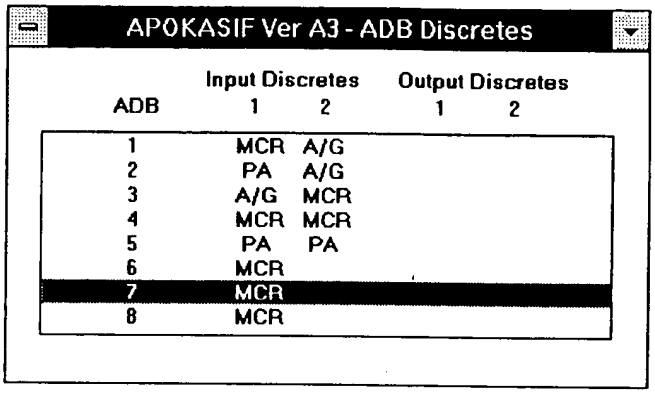


Fig. 26-25

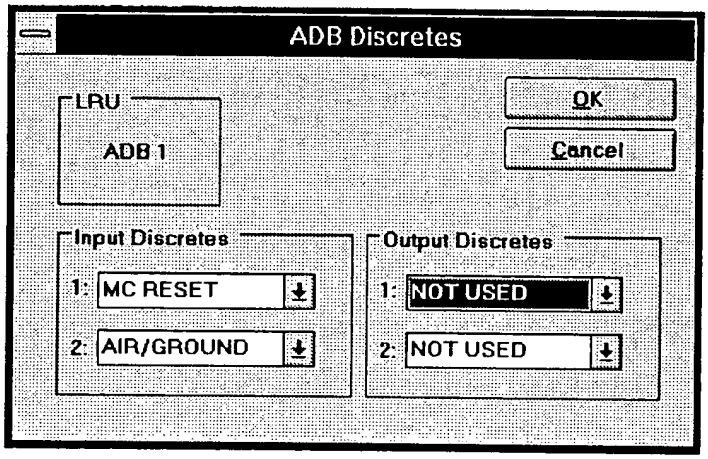


Fig. 26-26

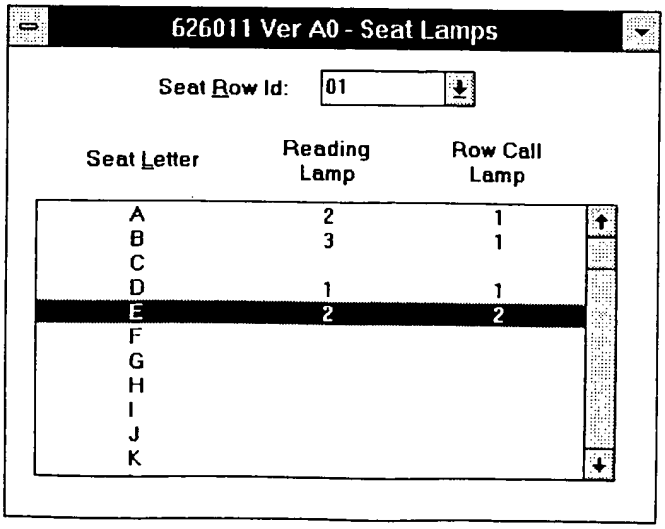


Fig. 26-27

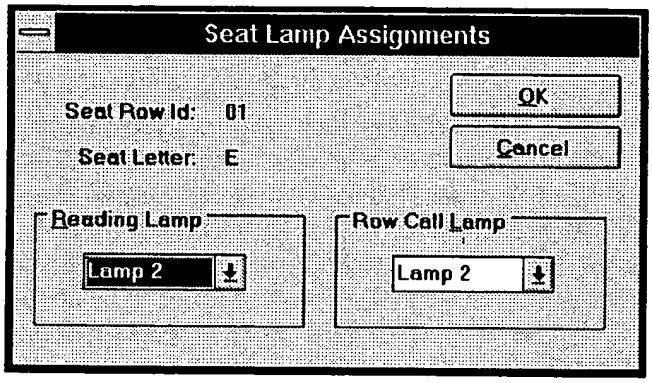


Fig. 26-28

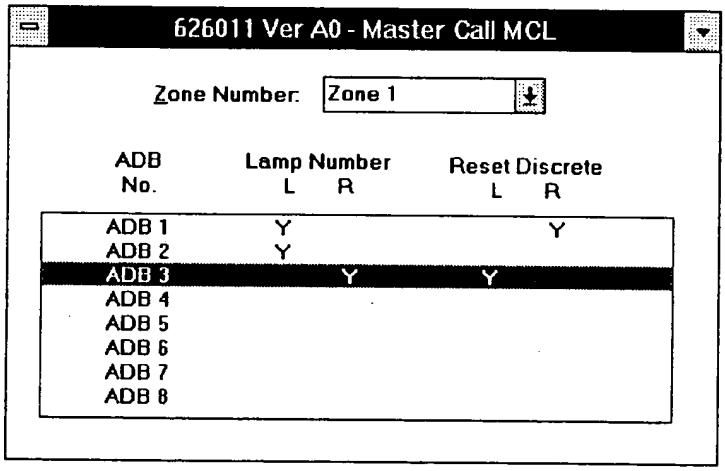


Fig. 26-29

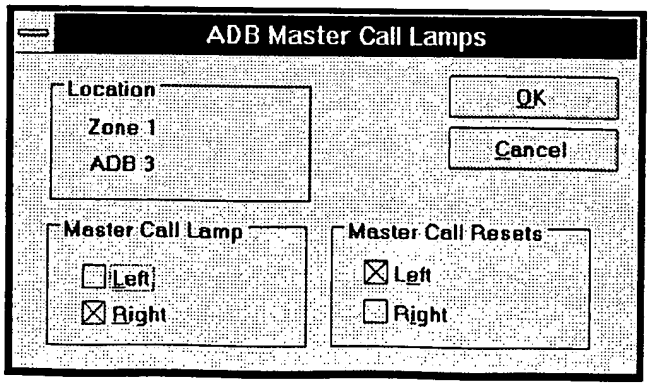


Fig. 26-30

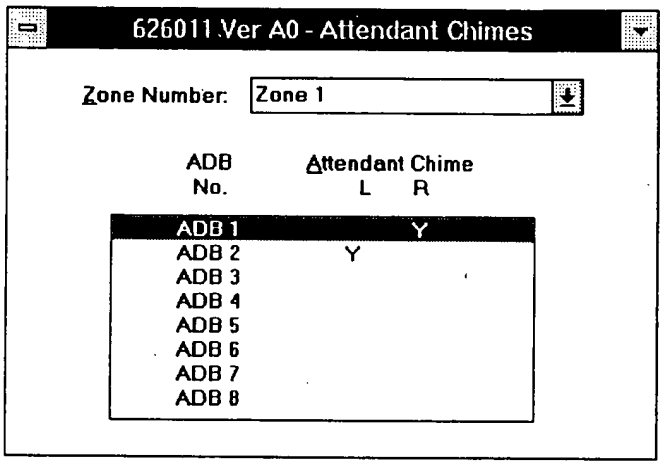


Fig. 26-31

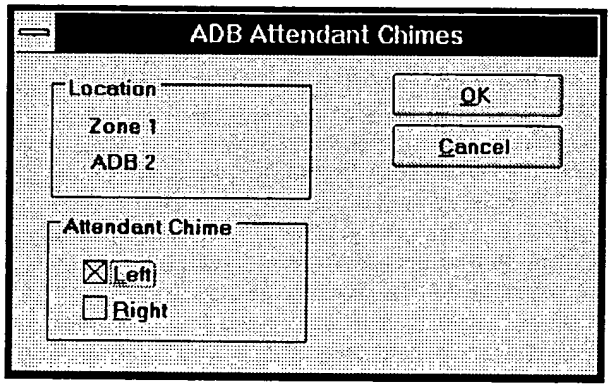


Fig. 26-32

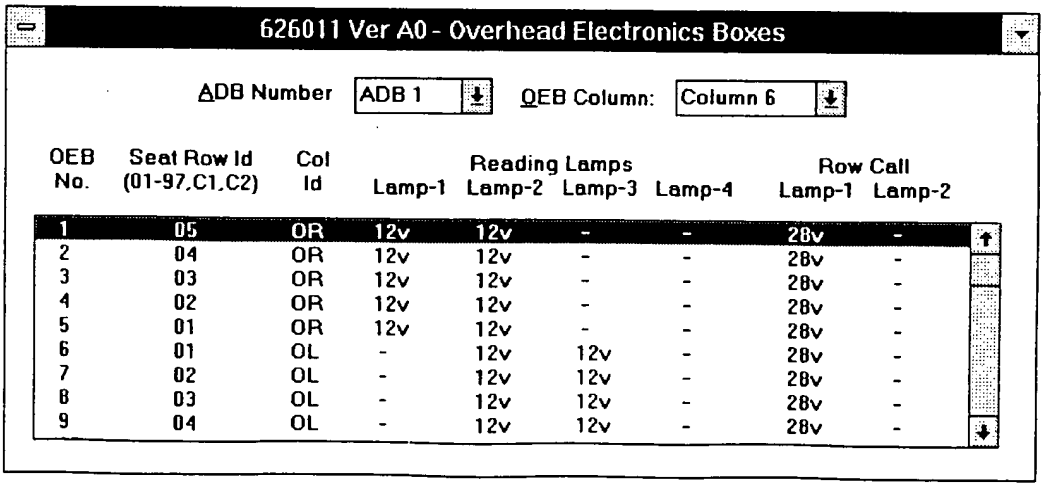


Fig. 26-33

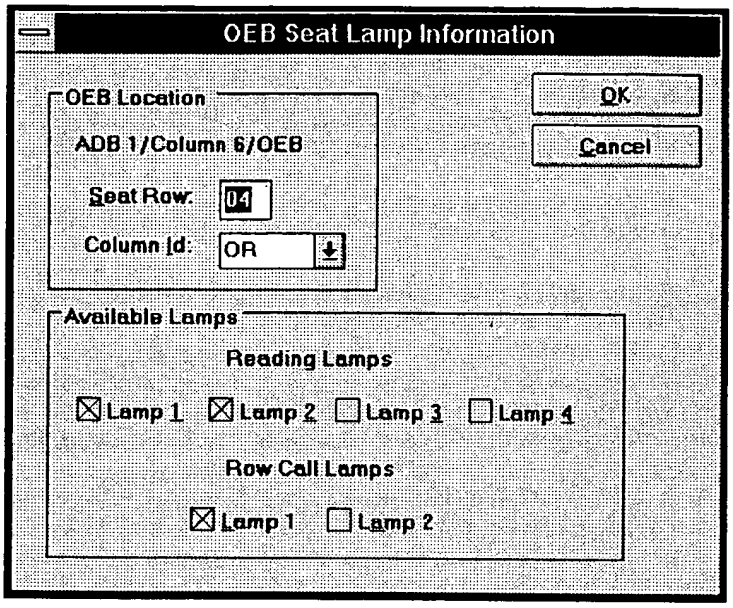


Fig. 26-34

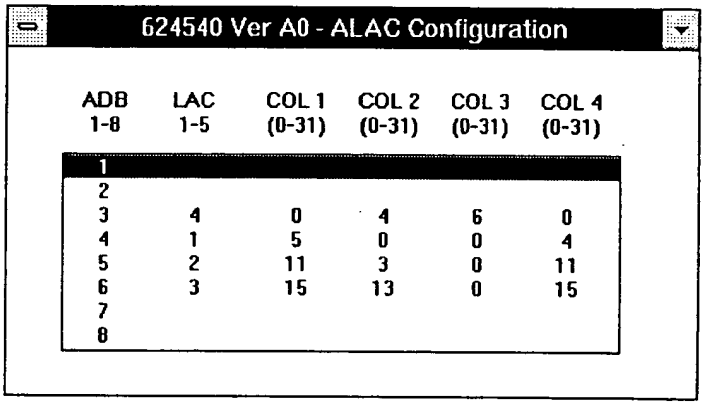


Fig. 26-35

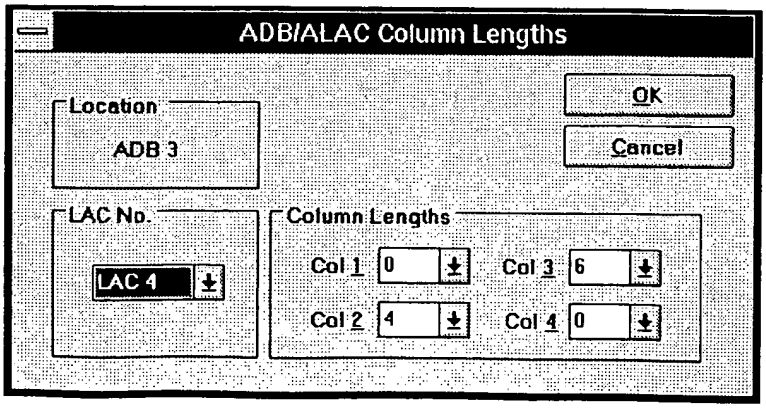


Fig. 26-36

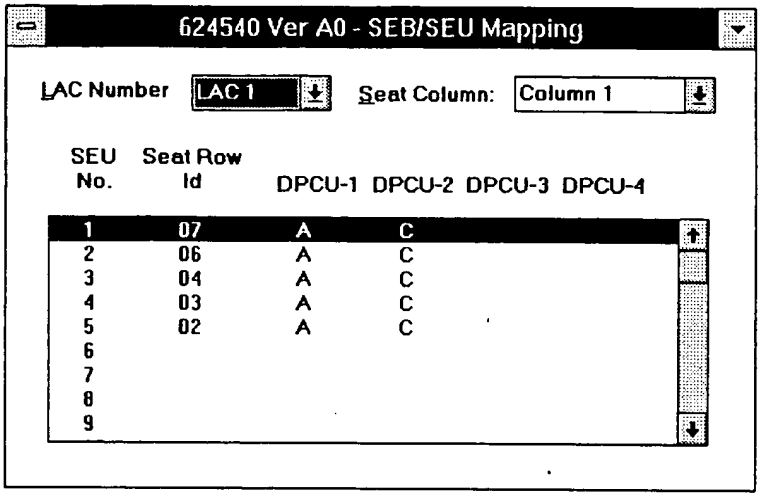


Fig. 26-37

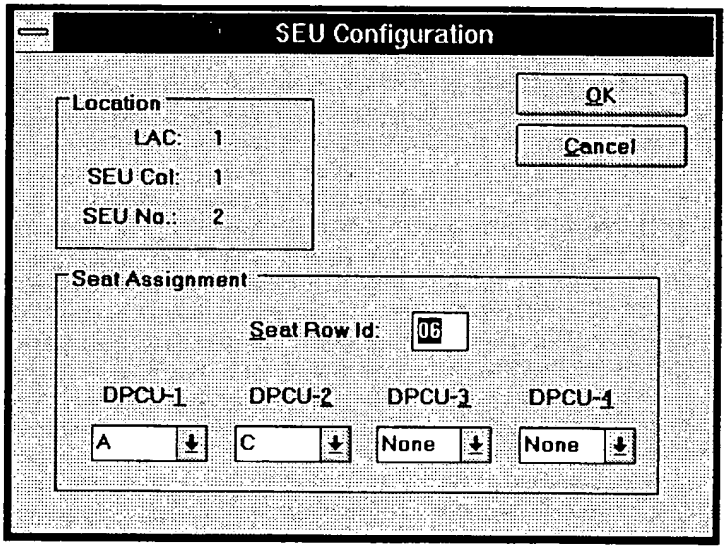


Fig. 26-38

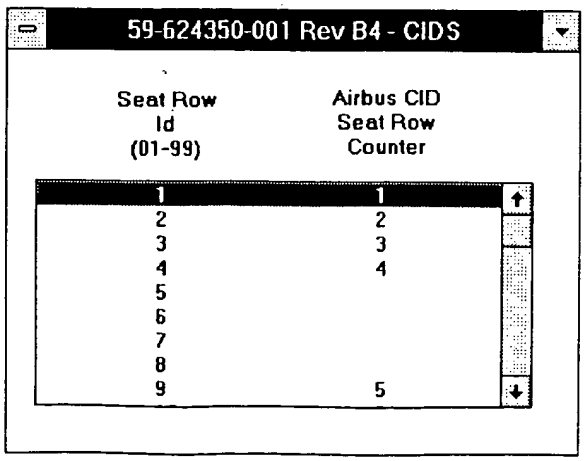


Fig. 26-39

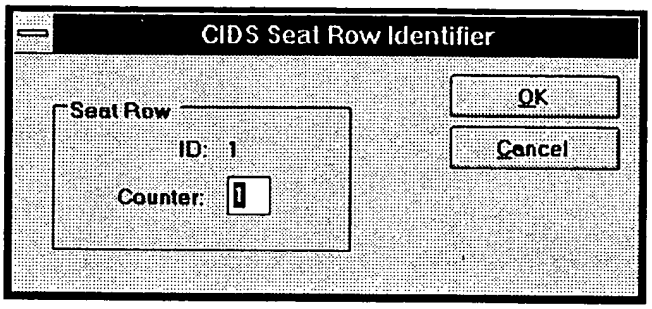


Fig. 26-40

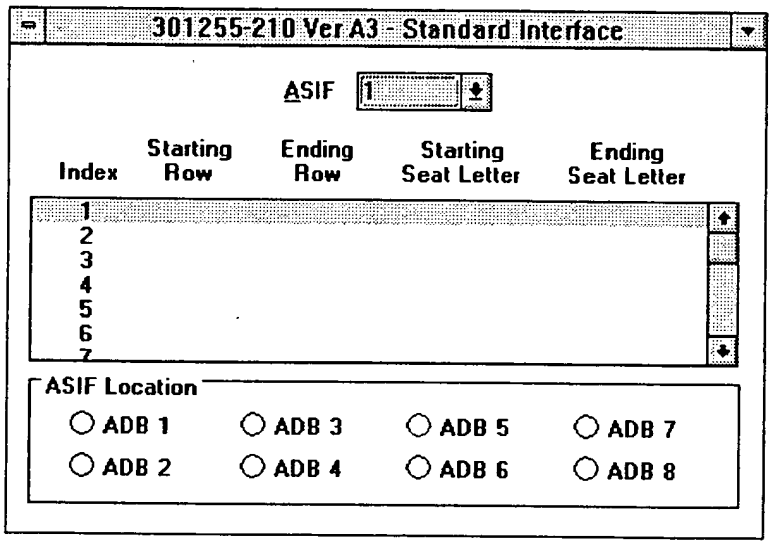


Fig. 26-41

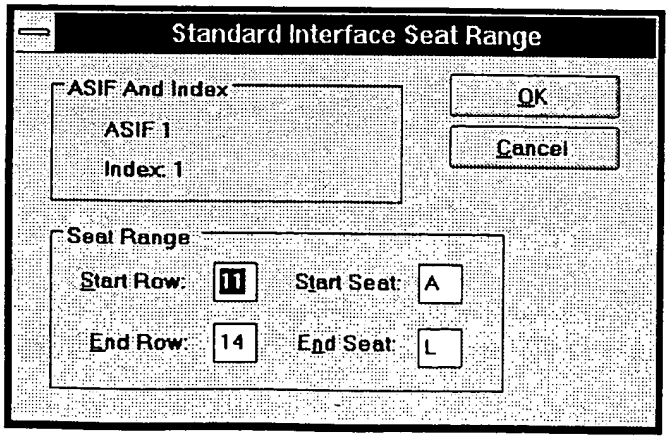


Fig. 26-42

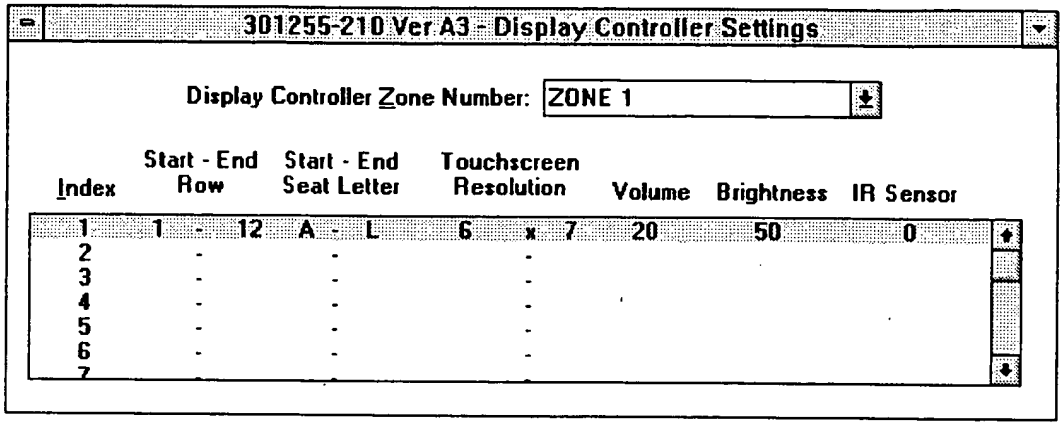


Fig. 26-43

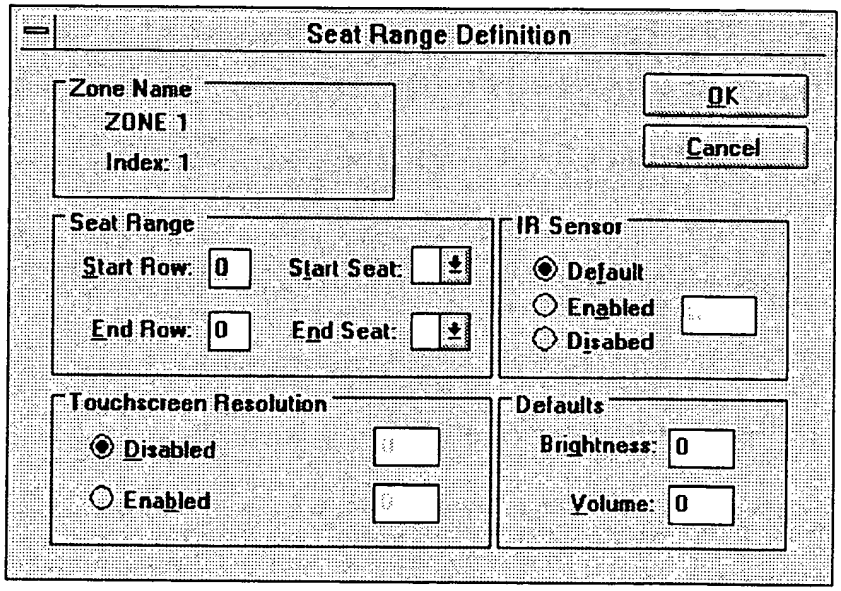


Fig. 26-44

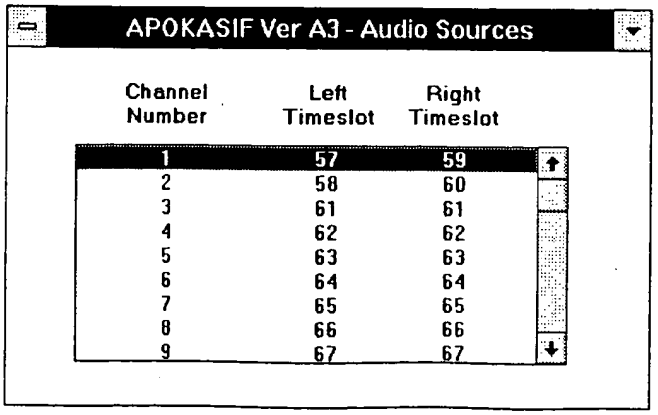


Fig. 26-45

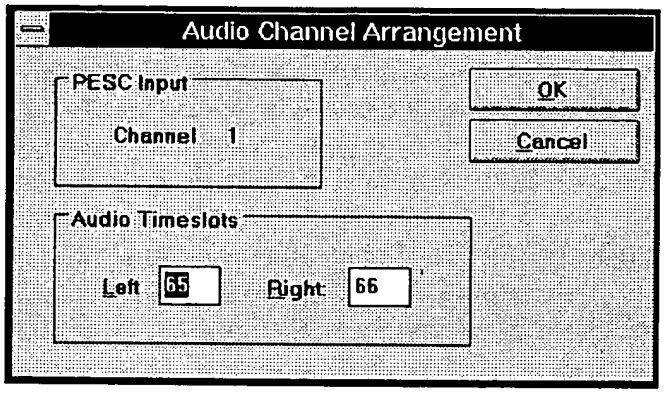


Fig. 26-46

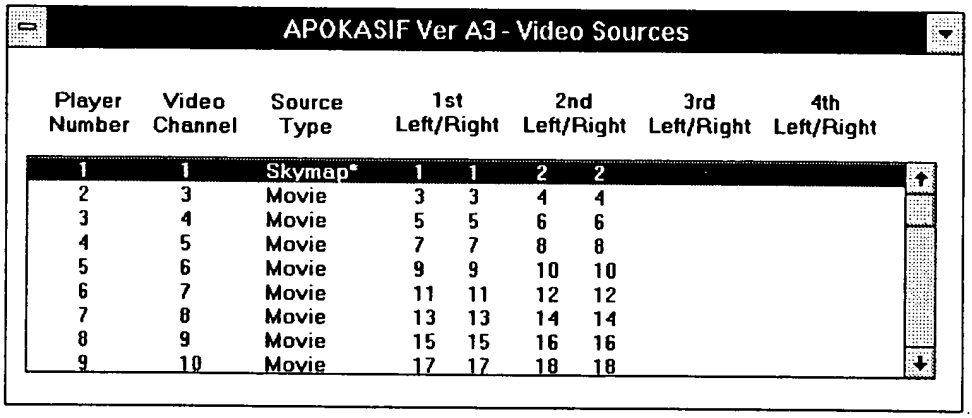


Fig. 26-47

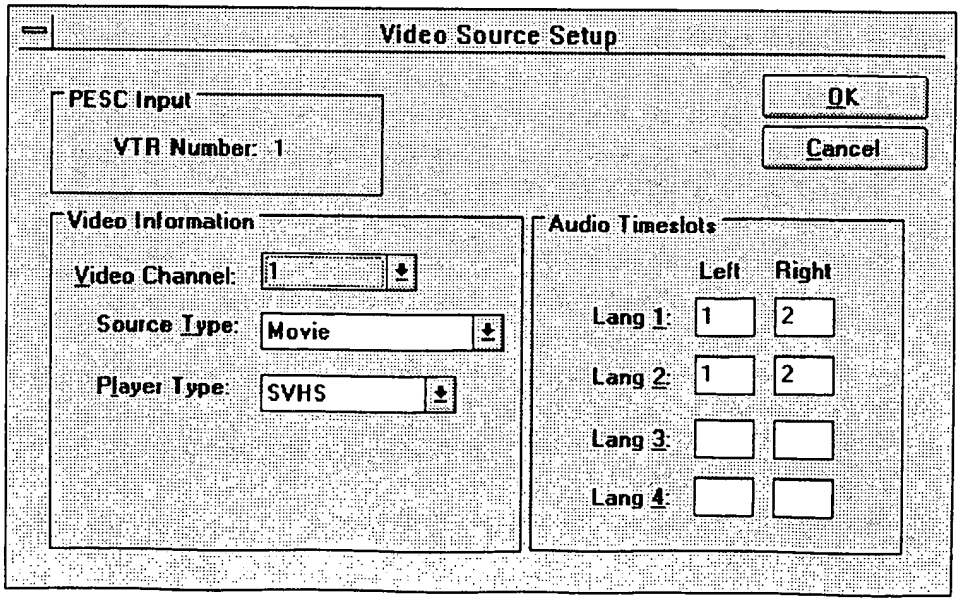


Fig. 26-48

APOKASIF Ver A3 - Audio Channels

Zone Name: ALL SEATS

Index	PCU Display	Default Channel	Audio Source	Left Timeslot	Right Timeslot
1	1	Y	Audio-1	57	59
2	2	N	Audio-2	58	60
3	3	N	Audio-3	61	61
4	4	N	Audio-4	62	62
5	5	N	Audio-5	63	63
6	6	N	Audio-6	64	64
7	7	N	Audio-7	65	65
8	8	N	Audio-8	66	66
9	9	N	Audio-9	67	67
10	10	N	Audio-10	68	68

Fig. 26-49

Audio Channel Arrangement

Zone Name
Zone Name: ALL SEATS
Index: 1

OK
Cancel

Channel Information
PCU Display: 1
Default: ☒

Audio Source
Channel: 1
Time Slots: 57/59

Source
(•) Audio Source
( ) Video Language 1
( ) Video Language 2

Fig. 26-50

APOKASIF Ver A3 - In-Seat Video Channels

Zone Name: ALL SEATS

Index	Display Channel	Default Channel	Movie Type	Player Number	PAY/FREE Status	Language	Left Timeslot	Right Timeslot
1	1	Y	Skymap*	VTR-1	FREE	1	1	1
2	12	N	Skymap*	VTR-1	FREE	2	2	2
3	2	N	Movie	VTR-2	FREE	1	3	3
4	13	N	Movie	VTR-2	FREE	2	4	4
5	3	N	Movie	VTR-3	FREE	1	5	5
6	14	N	Movie	VTR-3	FREE	2	6	6
7	4	N	Movie	VTR-4	FREE	1	7	7
8	15	N	Movie	VTR-4	FREE	2	8	8
9	5	N	Movie	VTR-5	FREE	1	9	9
10	16	N	Movie	VTR-5	FREE	2	10	10

Fig. 26-51

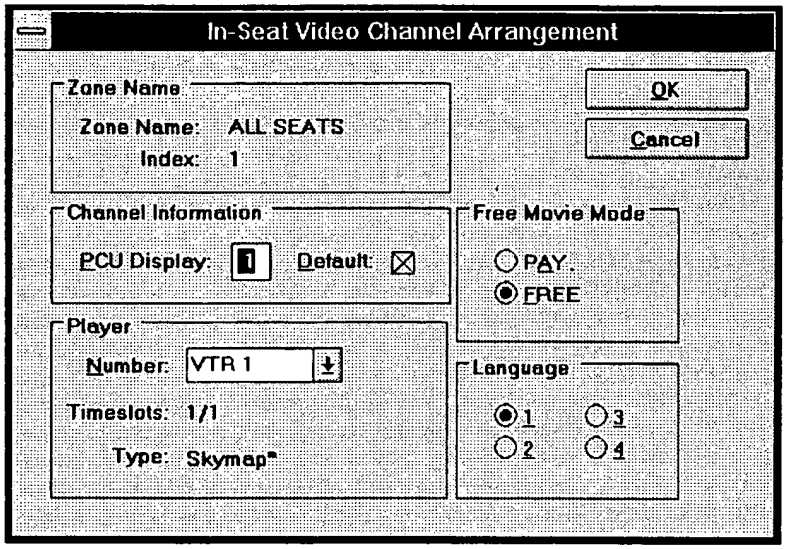


Fig. 26-52

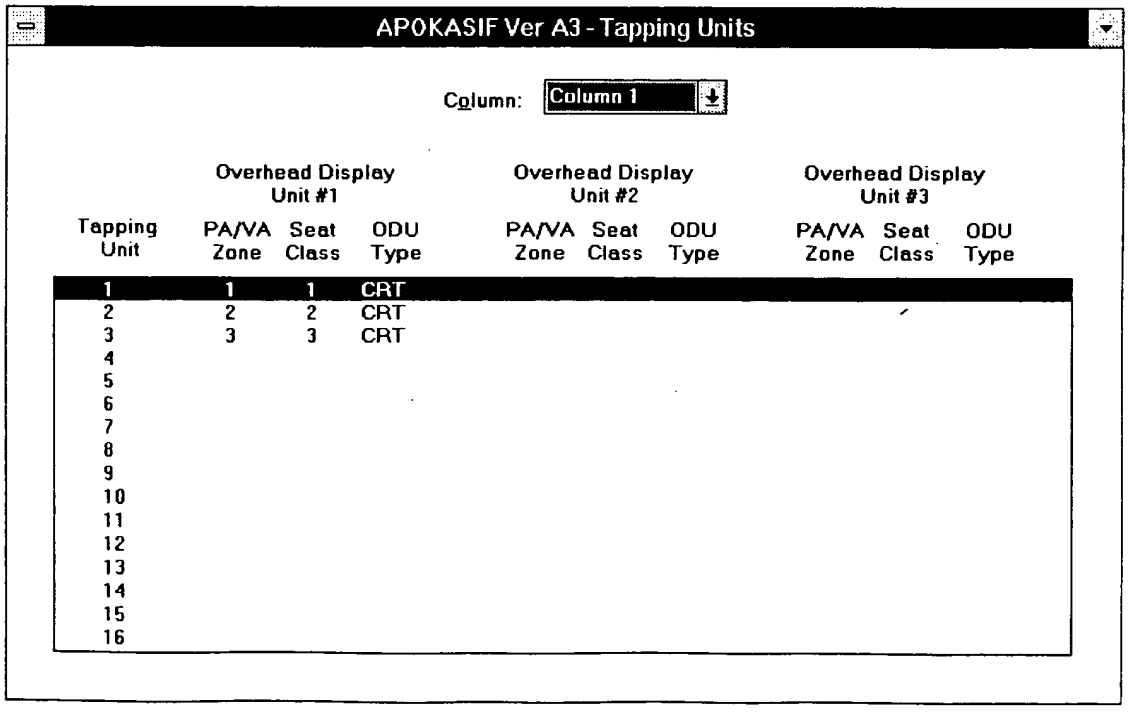


Fig. 26-53

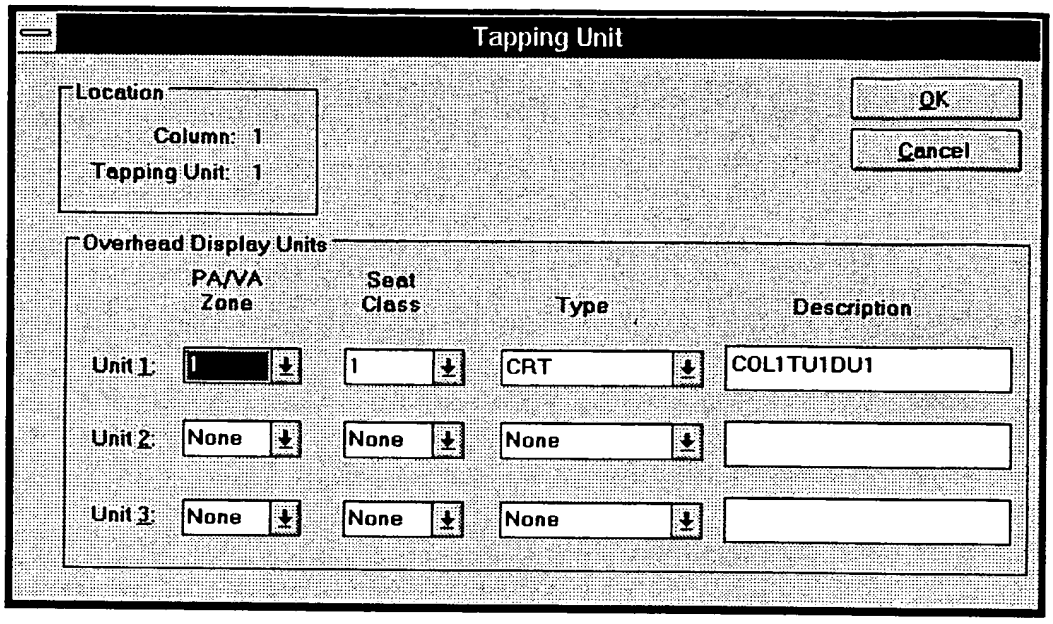


Fig. 26-54

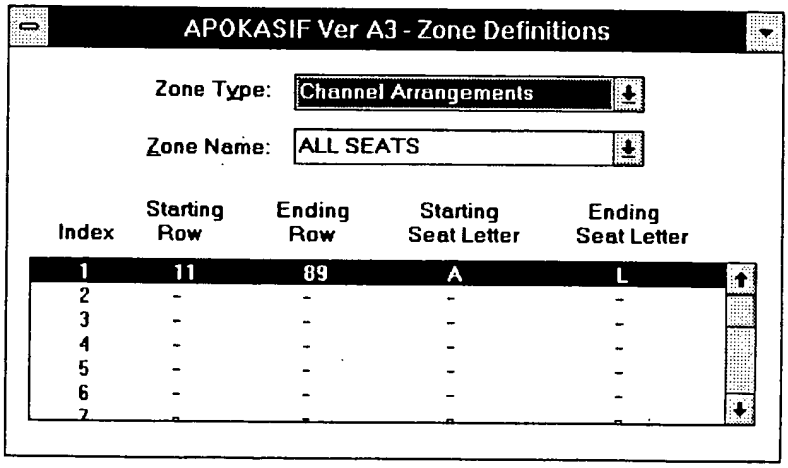


Fig. 26-55

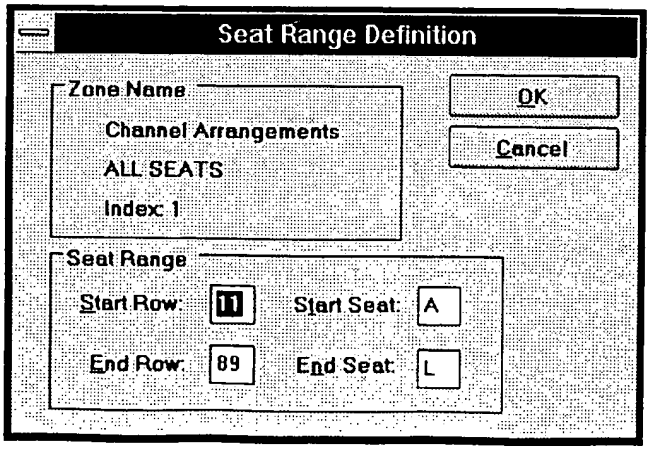


Fig. 26-56

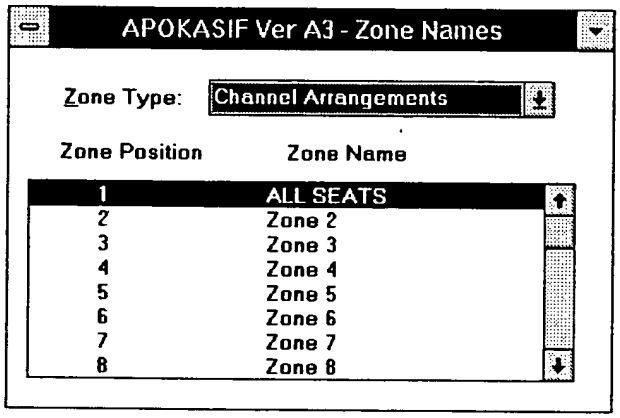


Fig. 26-57

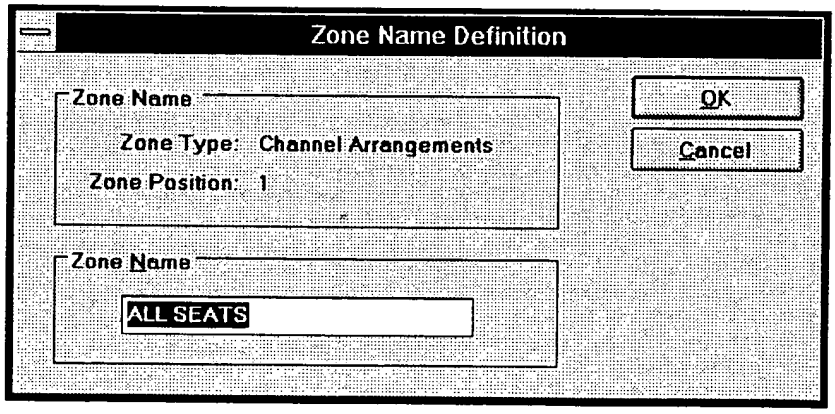


Fig. 26-58

Fig. 27

Control Center Runtime Software Architecture (PAT and CFS)

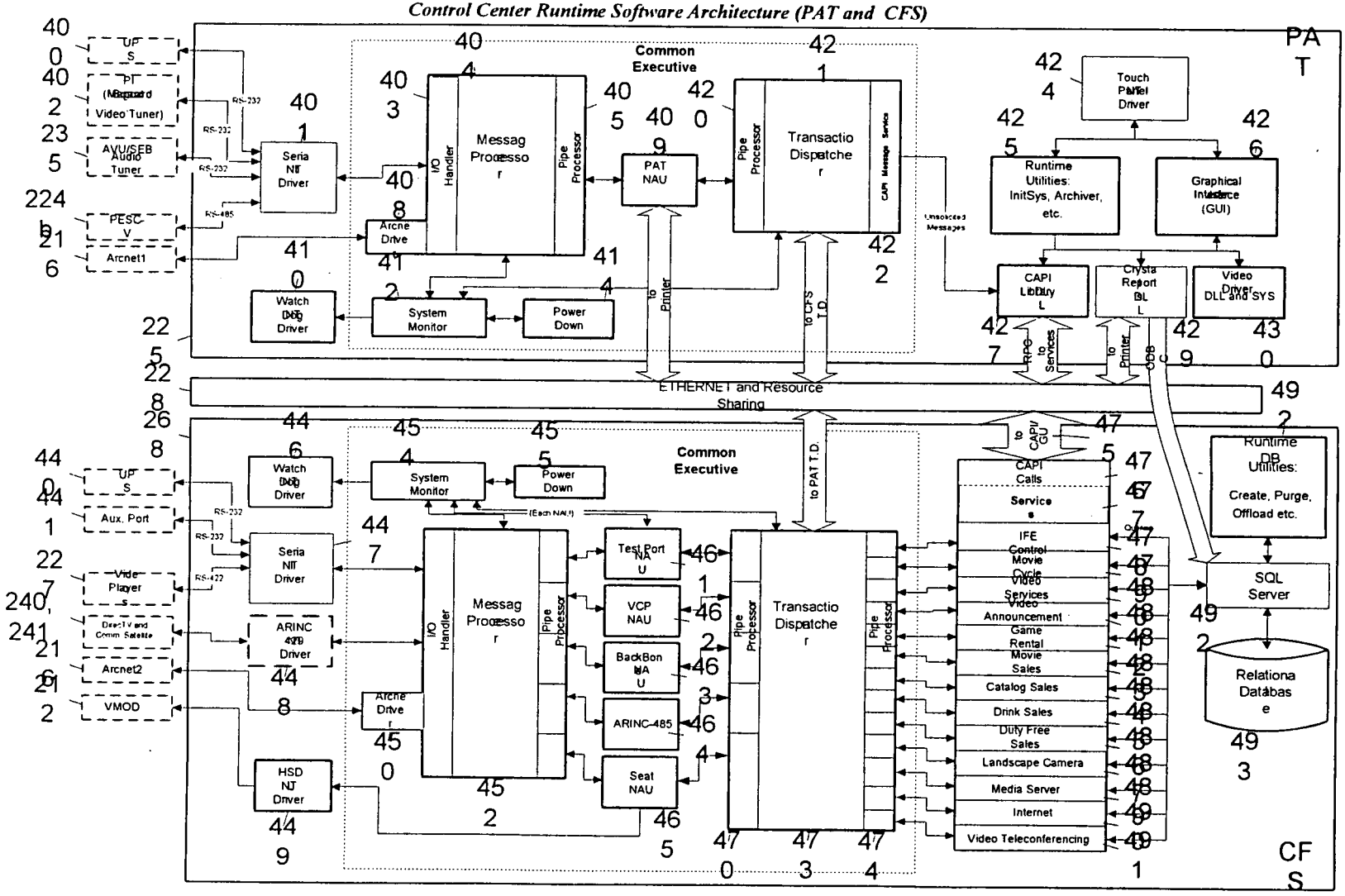


Fig. 28

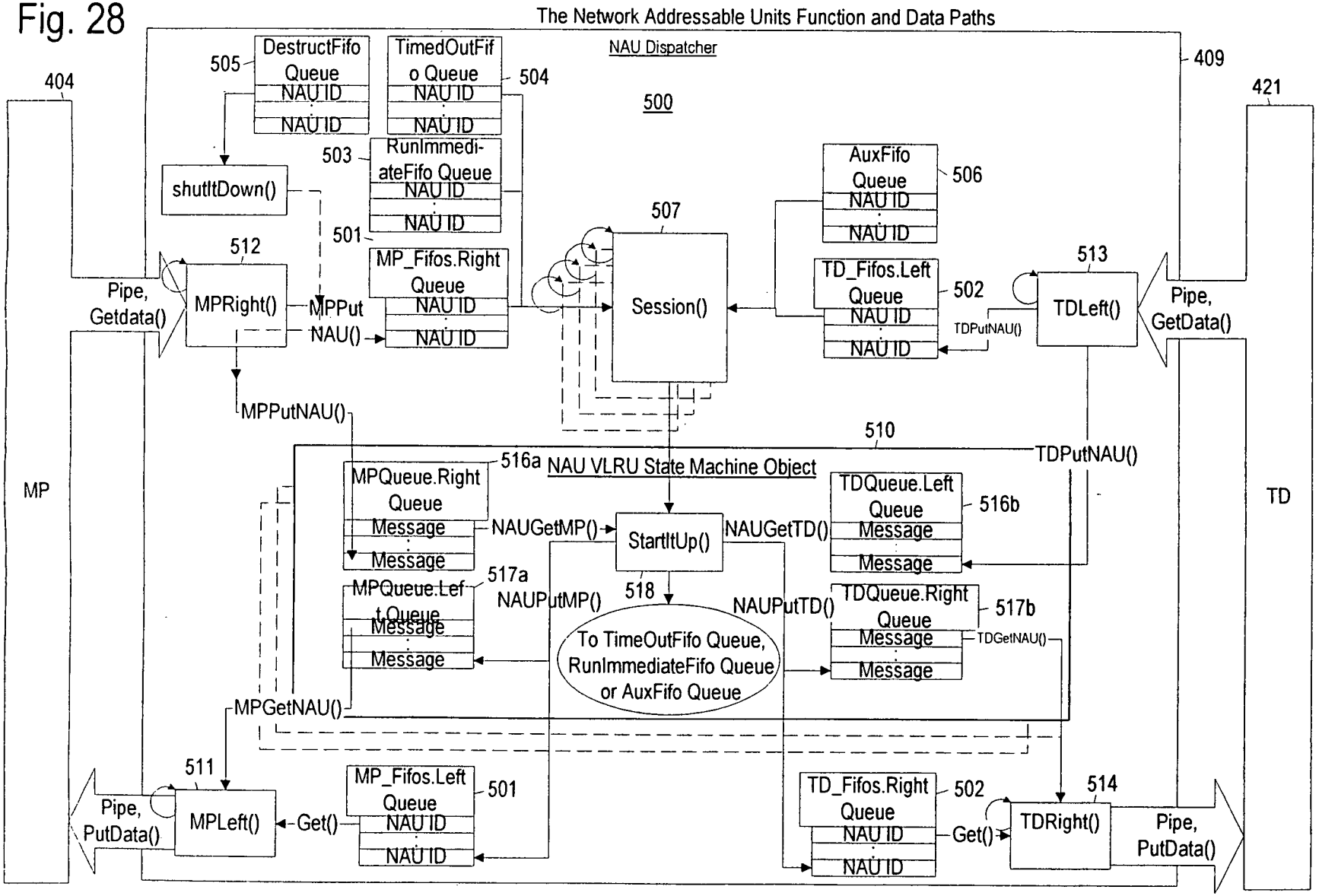
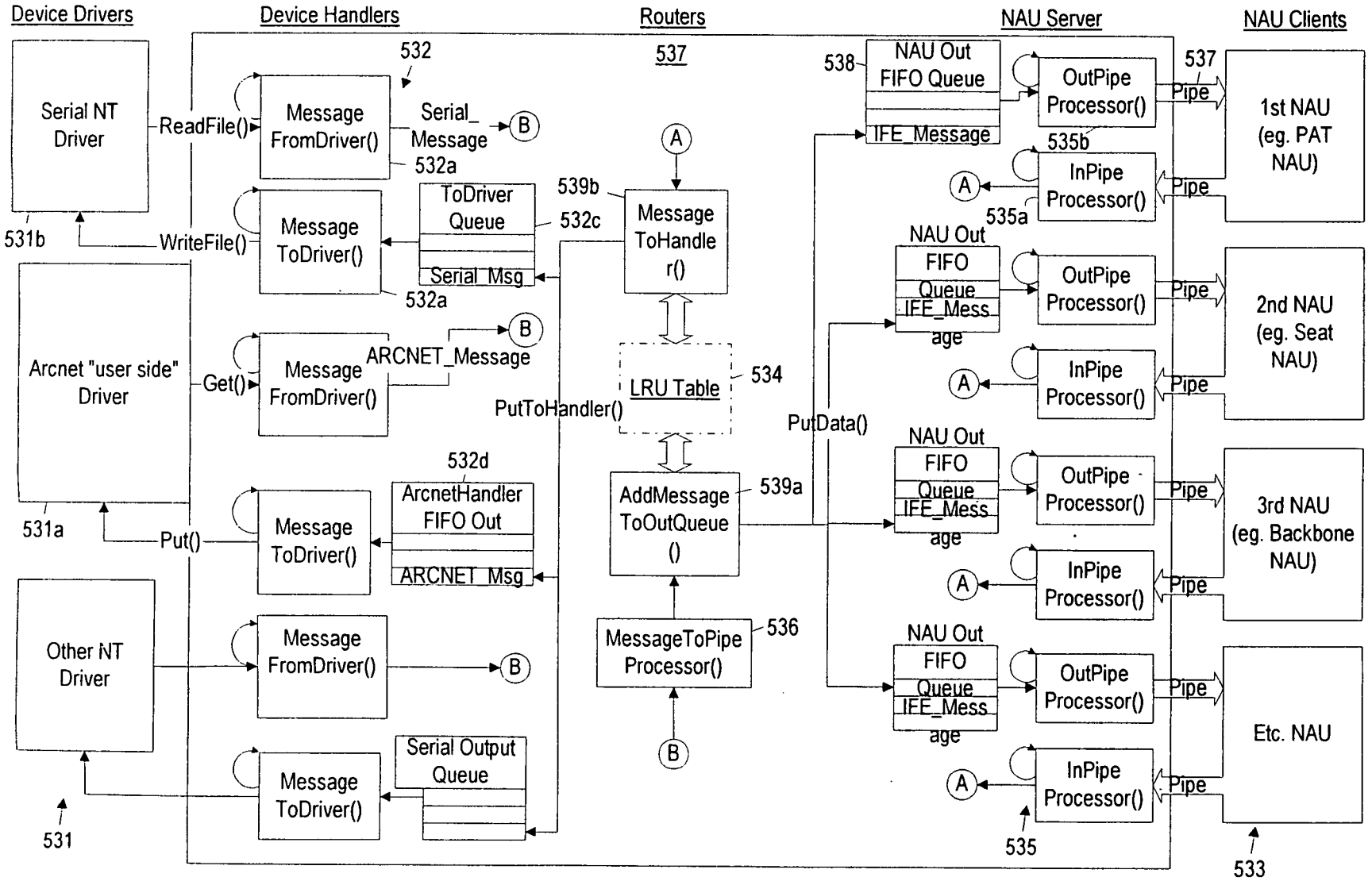

The Network Addressable Units Function and Data Paths
NAU Dispatcher
500
409
404
421
505
DestructFifo Queue
NAU ID
NAU ID
504
TimedOutFifo Queue
NAU ID
NAU ID
503
RunImmediateFifo Queue
NAU ID
NAU ID
shutItDown()
501
MP_Fifos.Right Queue
NAU ID
NAU ID
512
MPRight()
Pipe, Getdata()
MPPut
NAU()
MPPutNAU()
507
Session()
AuxFifo Queue
NAU ID
NAU ID
506
TD_Fifos.Left Queue
NAU ID
NAU ID
502
TDPutNAU()
513
TDLeft()
Pipe, GetData()
510
TDPutNAU()
516a
NAU VLRU State Machine Object
MPQueue.Right Queue
Message
Message
NAUGetMP()
StartItUp()
NAUGetTD()
TDQueue.Left Queue
Message
Message
516b
517a
MPQueue.Left Queue
Message
Message
NAUPutMP()
518
NAUPutTD()
TDQueue.Right Queue
Message
Message
517b
TDGetNAU()
To TimeOutFifo Queue, RunImmediateFifo Queue or AuxFifo Queue
MP
TD
MPGetNAU()
511
MPLeft()
Pipe, PutData()
Get()
MP_Fifos.Left Queue
NAU ID
NAU ID
501
TD_Fifos.Right Queue
NAU ID
NAU ID
502
Get()
514
TDRight()
Pipe, PutData()

Fig. 29

The Message Processor Function and Data Paths



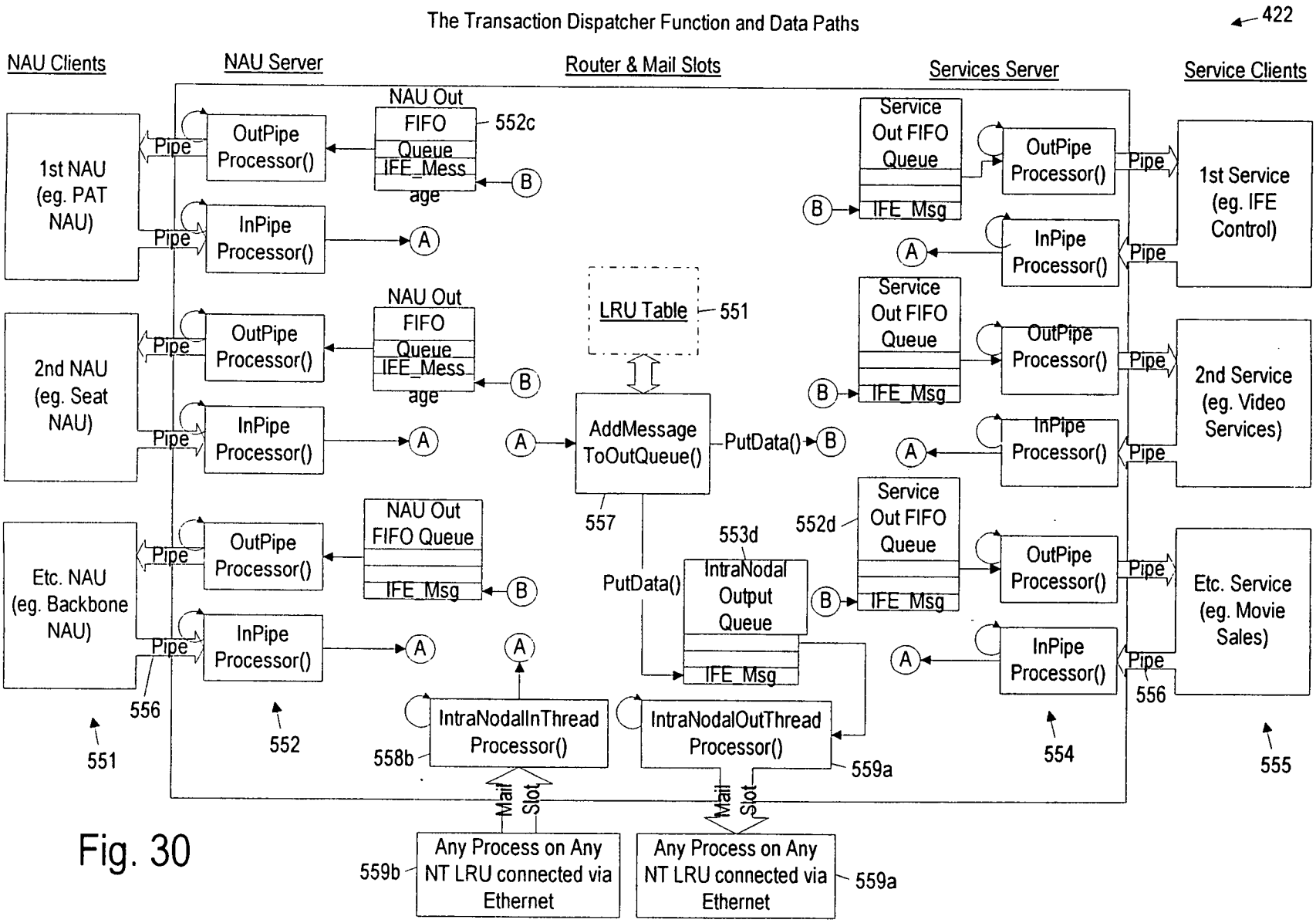

The Transaction Dispatcher Function and Data Paths
422
NAU Clients
NAU Server
Router & Mail Slots
Services Server
Service Clients
1st NAU (eg. PAT NAU)
2nd NAU (eg. Seat NAU)
Etc. NAU (eg. Backbone NAU)
Pipe
OutPipe Processor()
InPipe Processor()
NAU Out FIFO Queue
IFE_Message
552c
LRU Table
551
AddMessage ToOutQueue()
PutData()
557
IntraNodal Output Queue
553d
IFE_Msg
552d
Service Out FIFO Queue
1st Service (eg. IFE Control)
2nd Service (eg. Video Services)
Etc. Service (eg. Movie Sales)
IntraNodalInThread Processor()
IntraNodalOutThread Processor()
558b
559a
Mail Slot
Any Process on Any NT LRU connected via Ethernet
559b
556
551
552
554
555

Fig. 30

Fig. 31

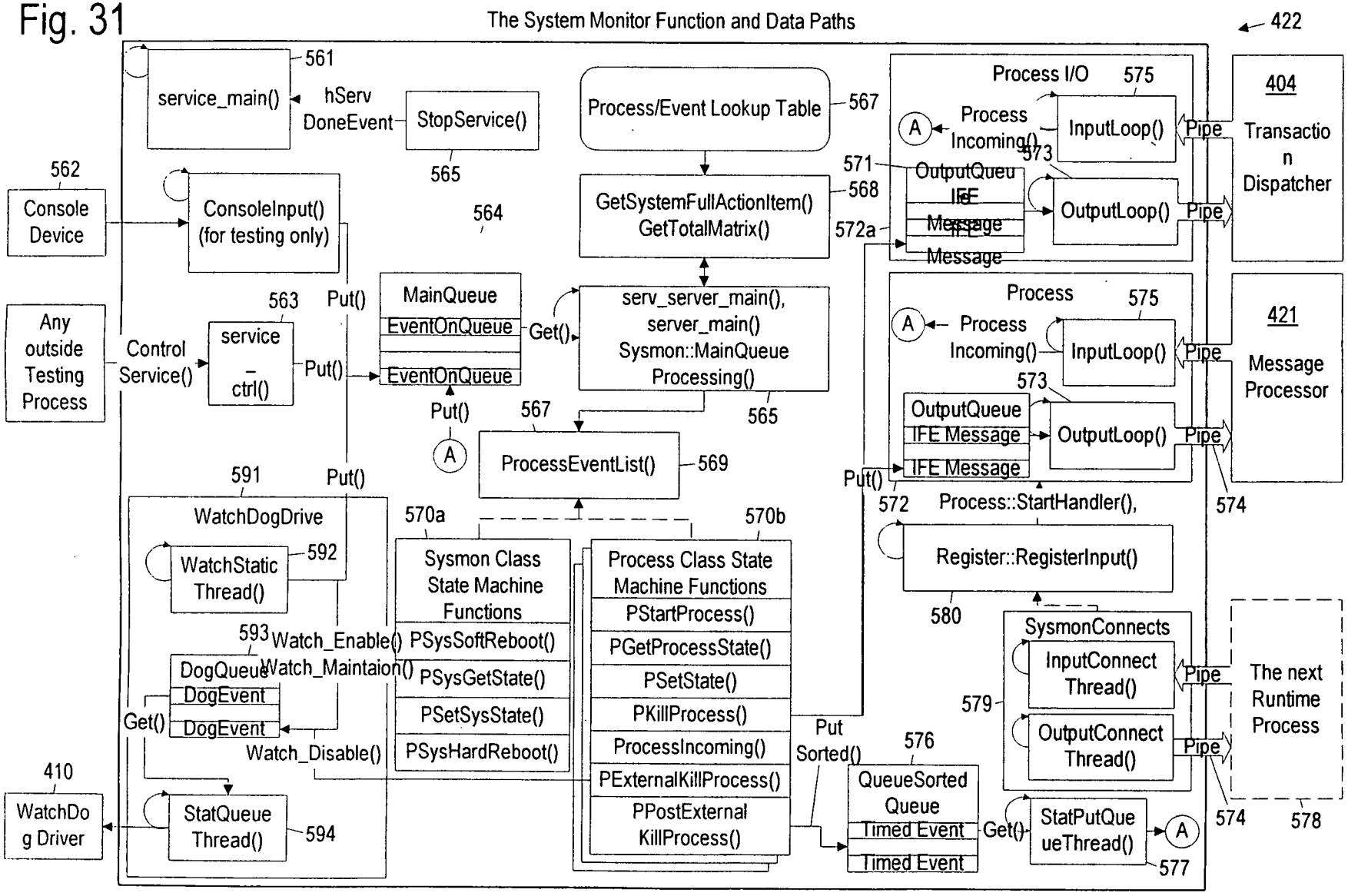

The System Monitor Function and Data Paths
422
service_main()
561
hServ DoneEvent
StopService()
565
Process/Event Lookup Table
567
Process I/O
575
404
Transaction Dispatcher
562
Console Device
ConsoleInput() (for testing only)
564
GetSystemFullActionItem()
GetTotalMatrix()
568
572a
571
OutputQueue
IFE Message
InputLoop()
OutputLoop()
Pipe
Any outside Testing Process
Control Service()
service_ctrl()
563
Put()
MainQueue
EventOnQueue
Get()
serv_server_main(), server_main()
Sysmon::MainQueue Processing()
565
Process
575
421
Message Processor
ProcessEventList()
569
567
591
WatchDogDrive
WatchStatic Thread()
592
570a
Sysmon Class State Machine Functions
PSysSoftReboot()
PSysGetState()
PSetSysState()
PSysHardReboot()
570b
Process Class State Machine Functions
PStartProcess()
PGetProcessState()
PSetState()
PKillProcess()
ProcessIncoming()
PExternalKillProcess()
PPostExternal KillProcess()
Watch_Enable()
Watch_Maintaion()
Watch_Disable()
593
DogQueue
DogEvent
Get()
Put Sorted()
576
QueueSorted Queue
Timed Event
Process::StartHandler(),
Register::RegisterInput()
580
SysmonConnects
InputConnect Thread()
OutputConnect Thread()
579
The next Runtime Process
578
574
410
WatchDog Driver
StatQueue Thread()
594
StatPutQueueThread()
577

Fig. 32

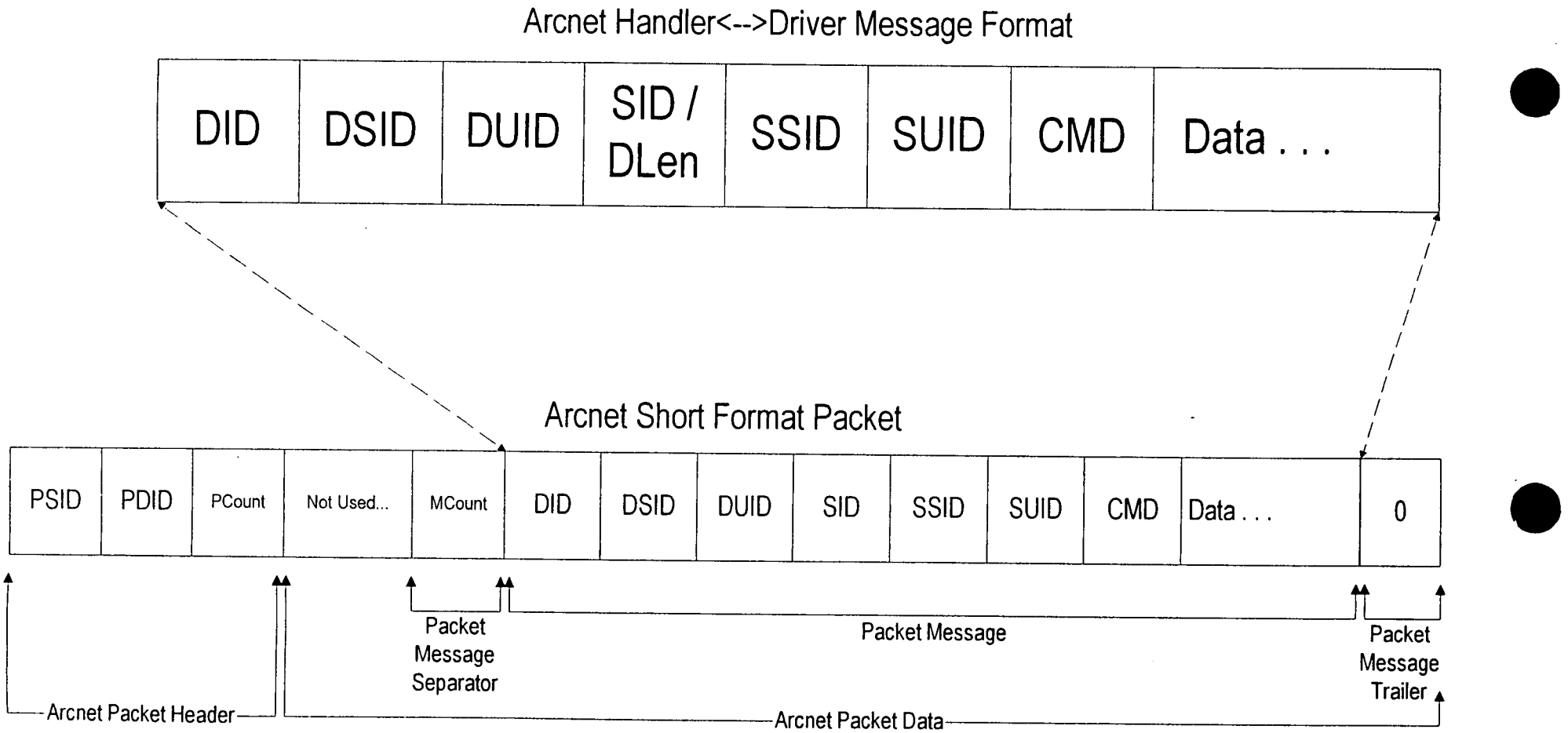

Arcnet Handler<-->Driver Message Format
DID
DSID
DUID
SID / DLen
SSID
SUID
CMD
Data . . .
Arcnet Short Format Packet
PSID
PDID
PCount
Not Used...
MCount
DID
DSID
DUID
SID
SSID
SUID
CMD
Data . . .
0
Packet Message Separator
Packet Message
Packet Message Trailer
Arcnet Packet Header
Arcnet Packet Data

Fig. 33

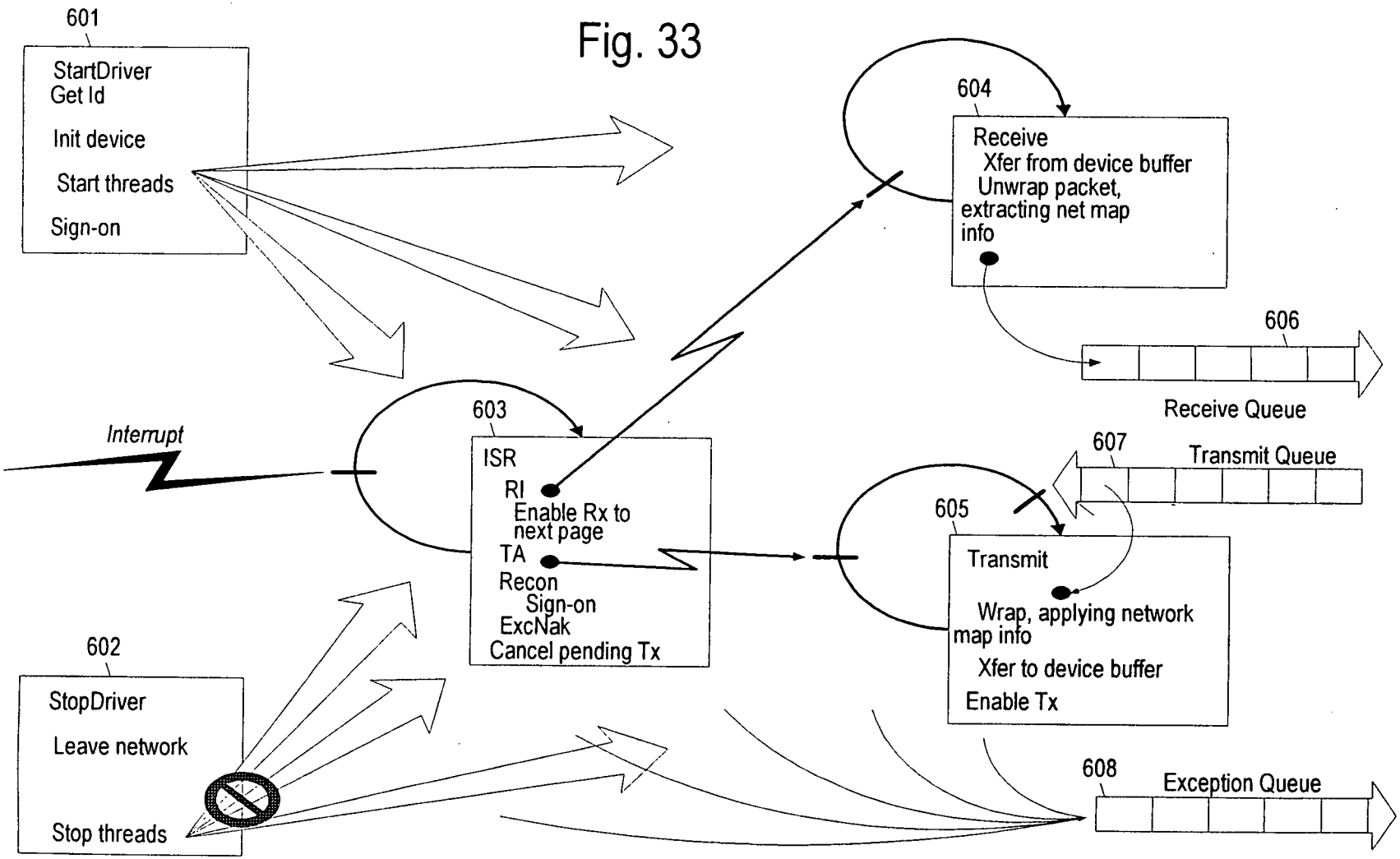

601
StartDriver
Get Id
Init device
Start threads
Sign-on
604
Receive
Xfer from device buffer
Unwrap packet, extracting net map info
606
Receive Queue
Interrupt
603
ISR
RI
Enable Rx to next page
TA
Recon
Sign-on
ExcNak
Cancel pending Tx
607
Transmit Queue
605
Transmit
Wrap, applying network map info
Xfer to device buffer
Enable Tx
602
StopDriver
Leave network
Stop threads
608
Exception Queue

Fig. 34

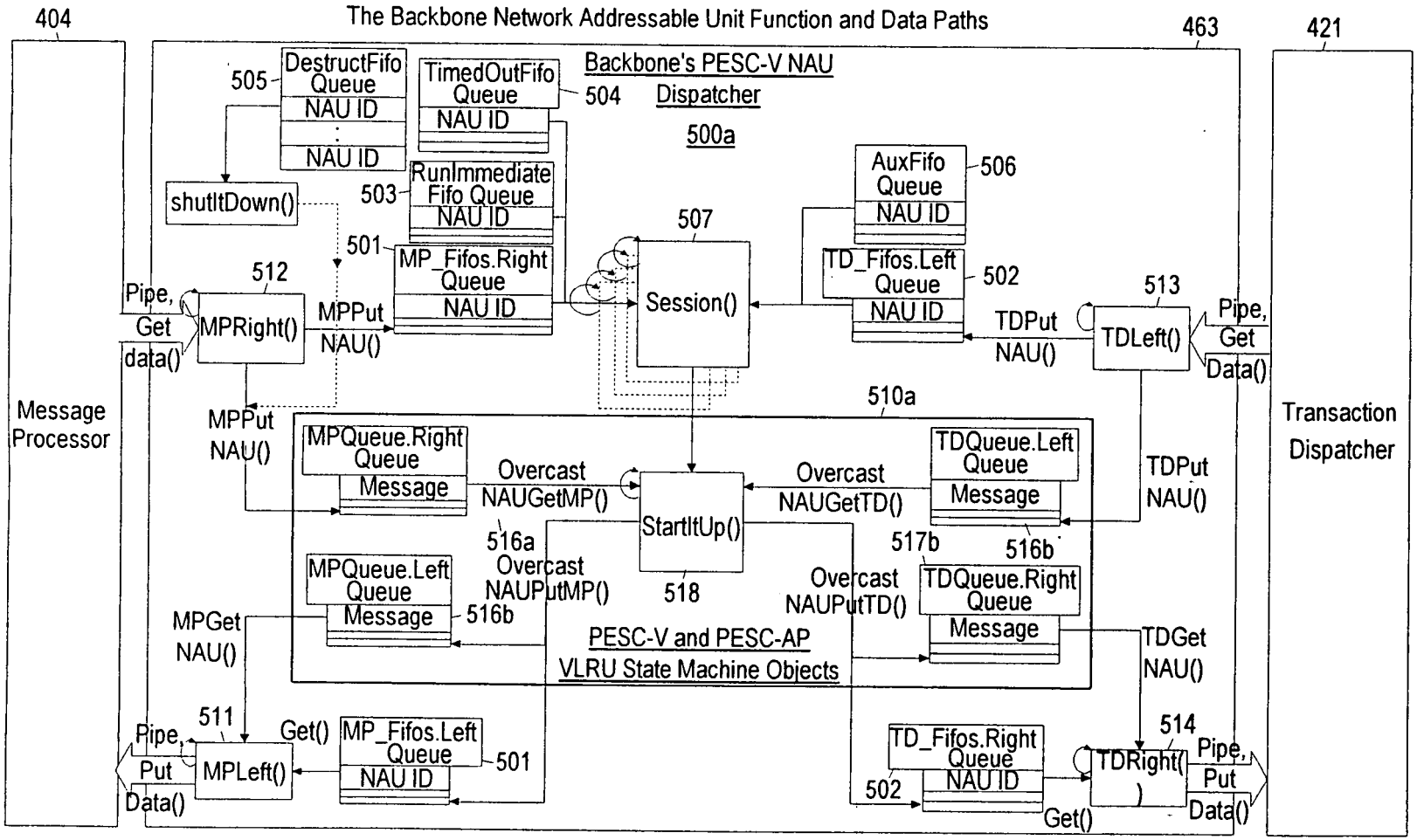

404
The Backbone Network Addressable Unit Function and Data Paths
463
421
Backbone's PESC-V NAU
Dispatcher
500a
DestructFifo Queue
NAU ID
NAU ID
505
TimedOutFifo Queue
NAU ID
504
RunImmediate Fifo Queue
NAU ID
503
shutItDown()
AuxFifo Queue
NAU ID
506
507
501
MP_Fifos.Right Queue
NAU ID
TD_Fifos.Left Queue
NAU ID
502
512
Pipe,
Get
data()
MPRight()
MPPut
NAU()
Session()
513
TDPut
NAU()
TDLeft()
Pipe,
Get
Data()
Message Processor
MPPut
NAU()
510a
MPQueue.Right Queue
Message
Overcast
NAUGetMP()
StartItUp()
Overcast
NAUGetTD()
TDQueue.Left Queue
Message
TDPut
NAU()
Transaction Dispatcher
516a
517b
516b
MPQueue.Left Queue
Message
516b
Overcast
NAUPutMP()
518
Overcast
NAUPutTD()
TDQueue.Right Queue
Message
MPGet
NAU()
PESC-V and PESC-AP
VLRU State Machine Objects
TDGet
NAU()
511
514
Pipe,
Put
Data()
Get()
MPLeft()
MP_Fifos.Left Queue
NAU ID
501
TD_Fifos.Right Queue
NAU ID
502
TDRight( )
Pipe,
Put
Data()
Get()

Fig. 35

The Seat Network Addressable Units Function and Data Paths

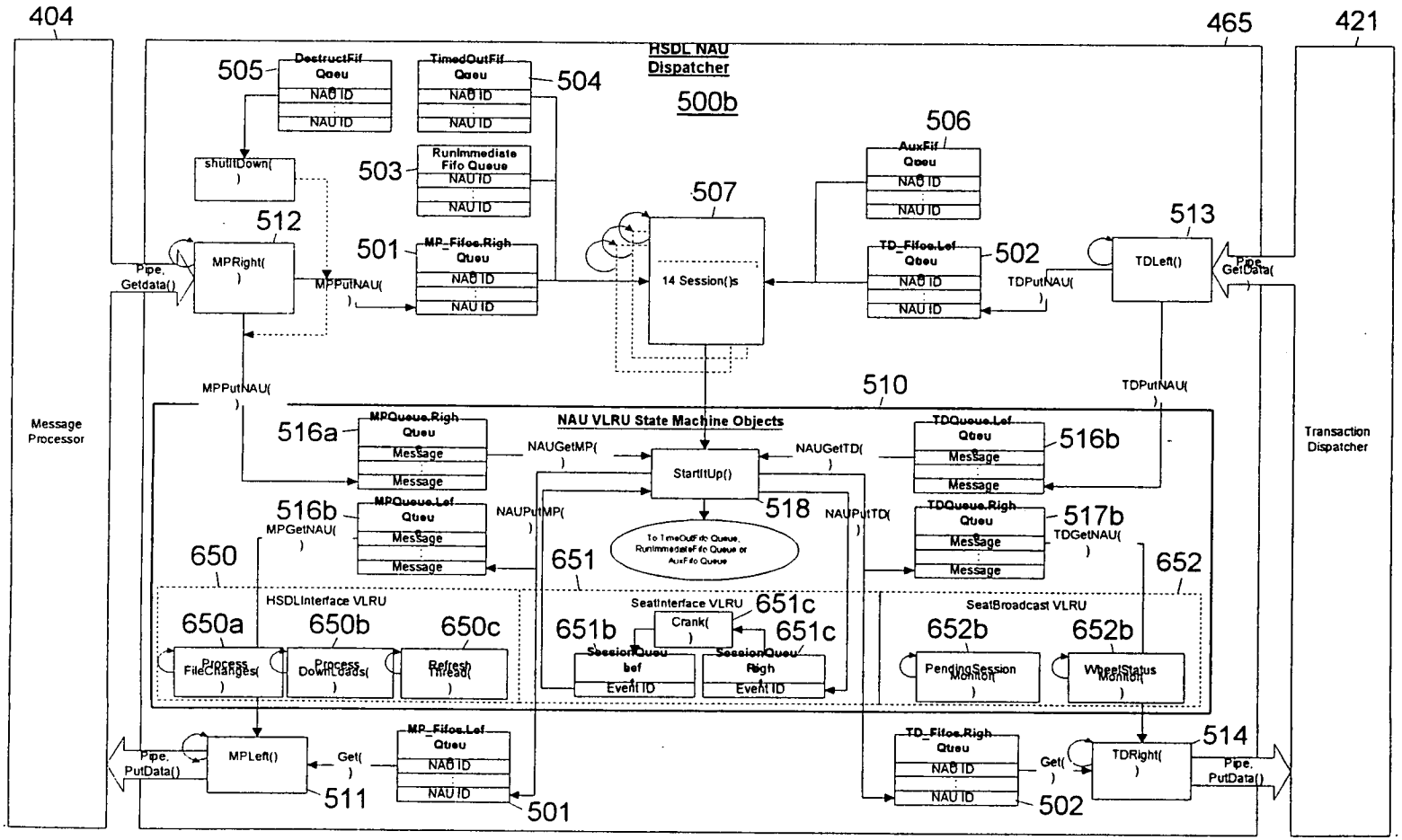


Fig. 36

The VCP Network Addressable Unit Function and Data Paths

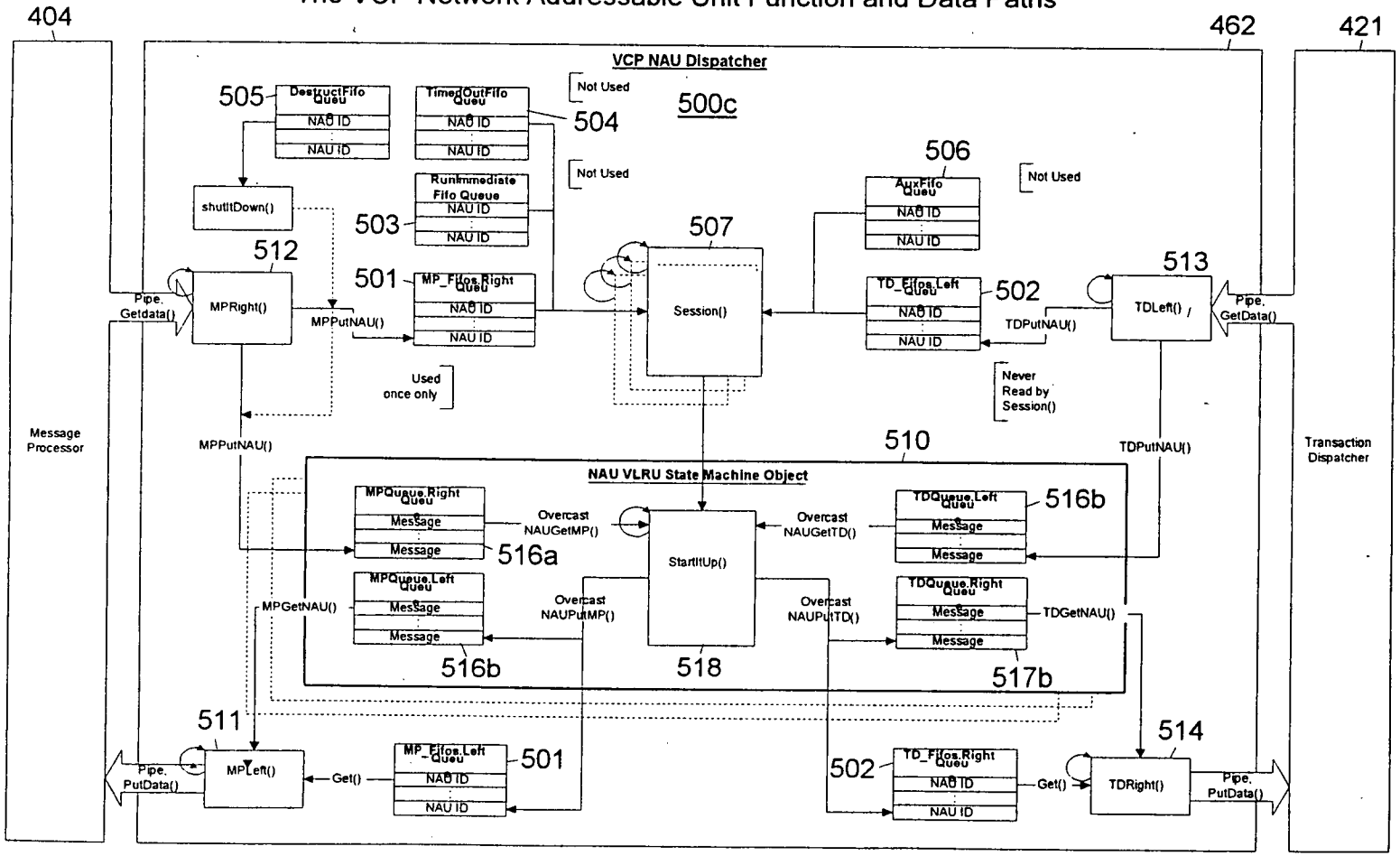


Fig. 37

The TestPort Network Addressable Unit Function and Data Paths

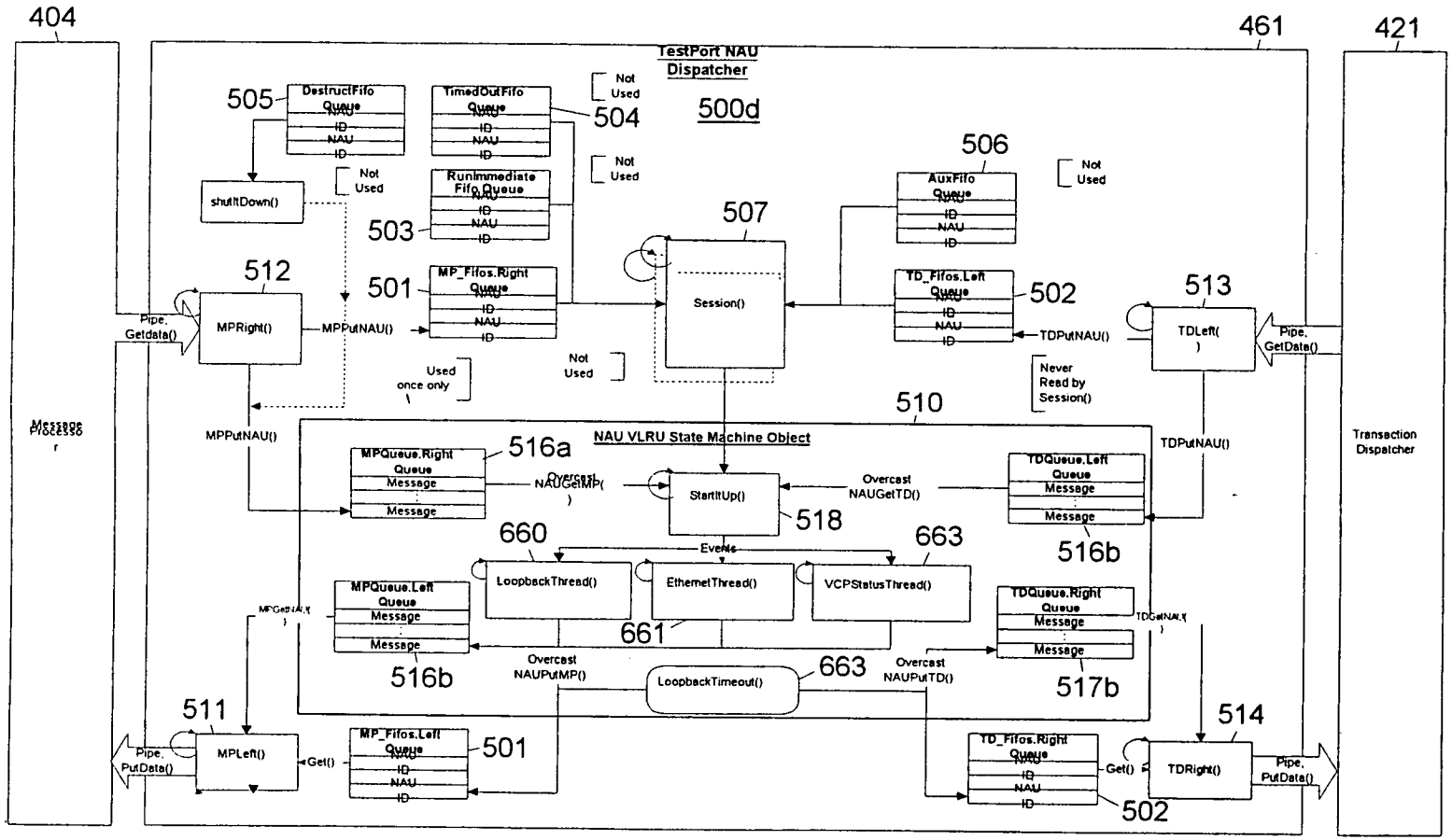
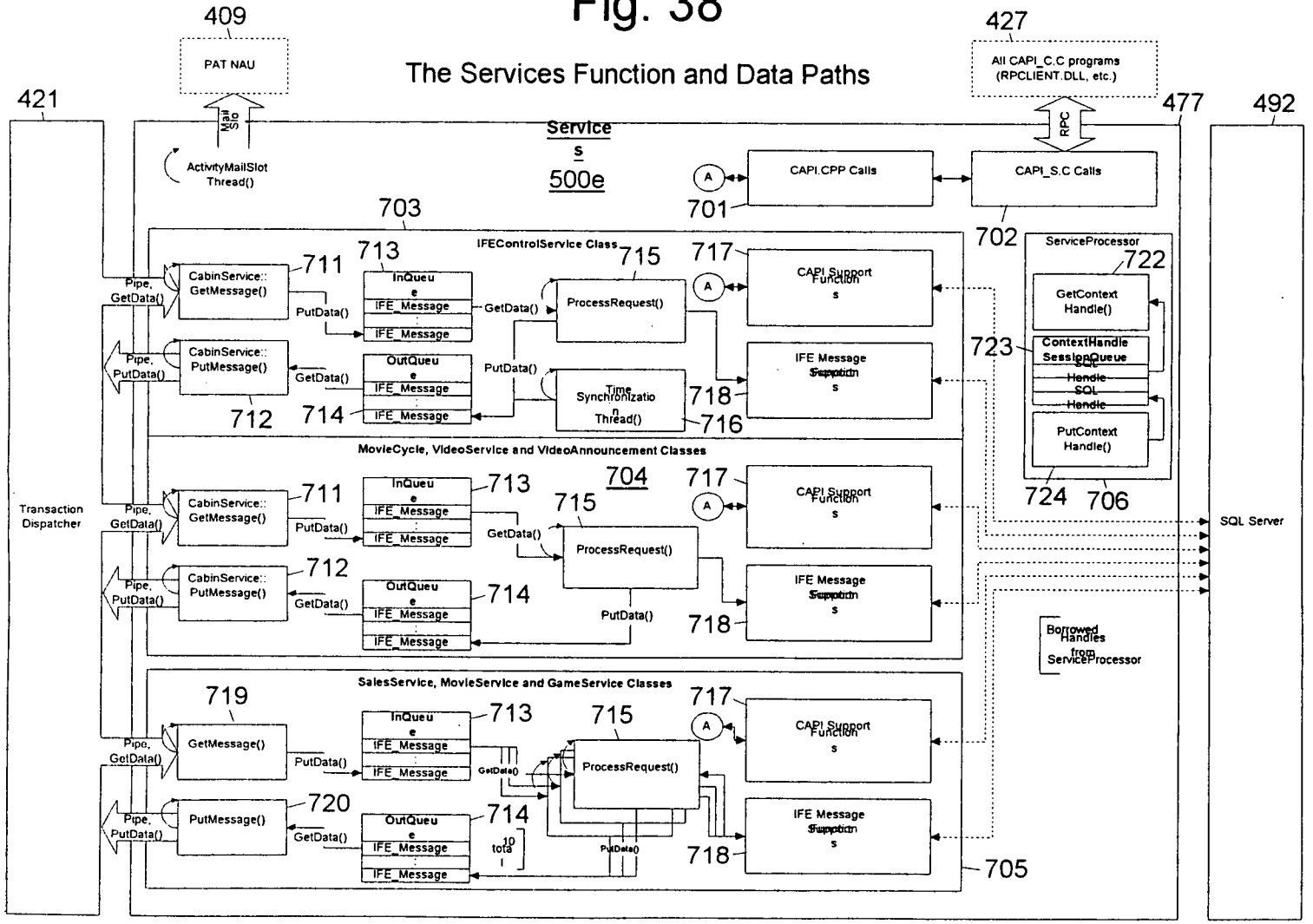


Fig. 38

The Services Function and Data Paths



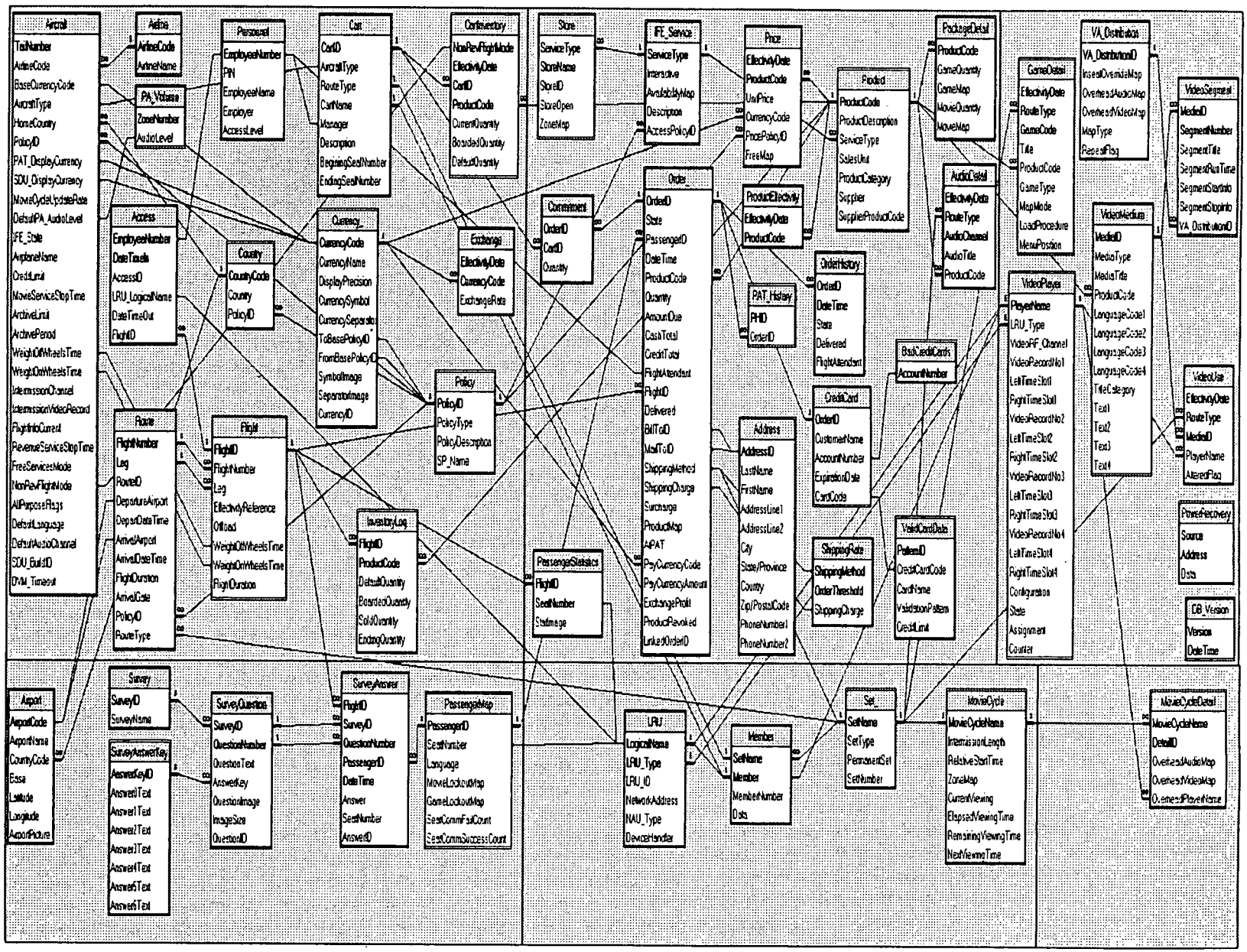


Fig. 39

Fig. 40

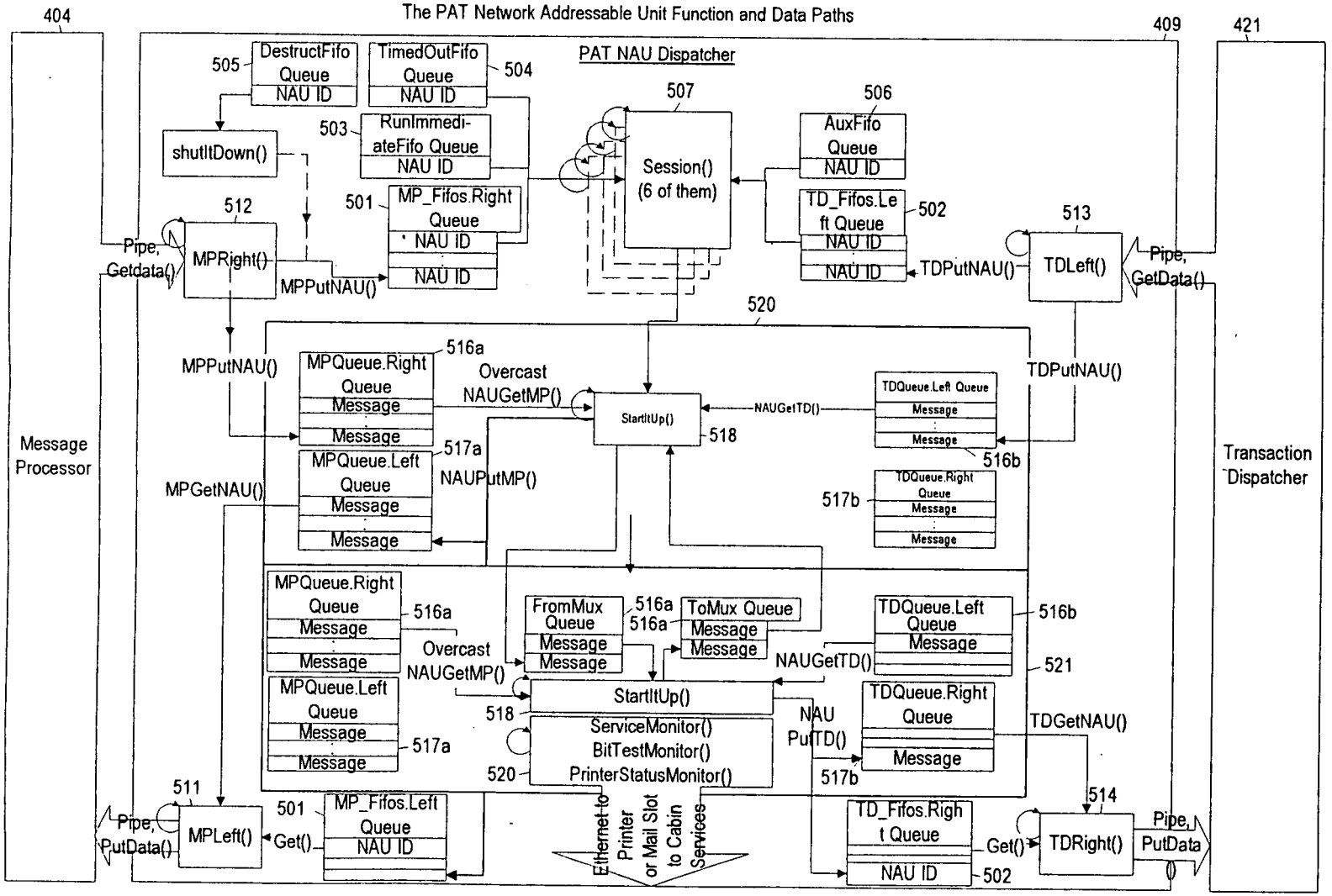

The PAT Network Addressable Unit Function and Data Paths
404
409
421
PAT NAU Dispatcher
Message Processor
Transaction Dispatcher
DestructFifo Queue
NAU ID
505
TimedOutFifo Queue
NAU ID
504
shutItDown()
RunImmedi-ateFifo Queue
NAU ID
503
Session() (6 of them)
507
AuxFifo Queue
NAU ID
506
MP_Fifos.Right Queue
NAU ID
NAU ID
501
TD_Fifos.Le ft Queue
NAU ID
NAU ID
502
512
MPRight()
Pipe, Getdata()
MPPutNAU()
TDPutNAU()
513
TDLeft()
Pipe, GetData()
520
MPPutNAU()
MPQueue.Right Queue
Message
Message
516a
Overcast NAUGetMP()
StartItUp()
518
NAUGetTD()
TDQueue.Left Queue
Message
Message
516b
TDPutNAU()
MPQueue.Left Queue
Message
Message
517a
NAUPutMP()
MPGetNAU()
TDQueue.Right Queue
Message
Message
517b
MPQueue.Right Queue
Message
Message
516a
FromMux Queue
Message
Message
516a
ToMux Queue
Message
Message
516a
TDQueue.Left Queue
Message
516b
Overcast NAUGetMP()
NAUGetTD()
521
MPQueue.Left Queue
Message
Message
517a
StartItUp()
518
ServiceMonitor()
BitTestMonitor()
PrinterStatusMonitor()
520
NAU PutTD()
TDQueue.Right Queue
Message
517b
TDGetNAU()
511
MPLeft()
Pipe, PutData()
501
MP_Fifos.Left Queue
NAU ID
Get()
Ethernet to Printer or Mail Slot to Cabin Services
TD_Fifos.Righ t Queue
NAU ID
502
Get()
514
TDRight()
Pipe, PutData ()

Fig. 41

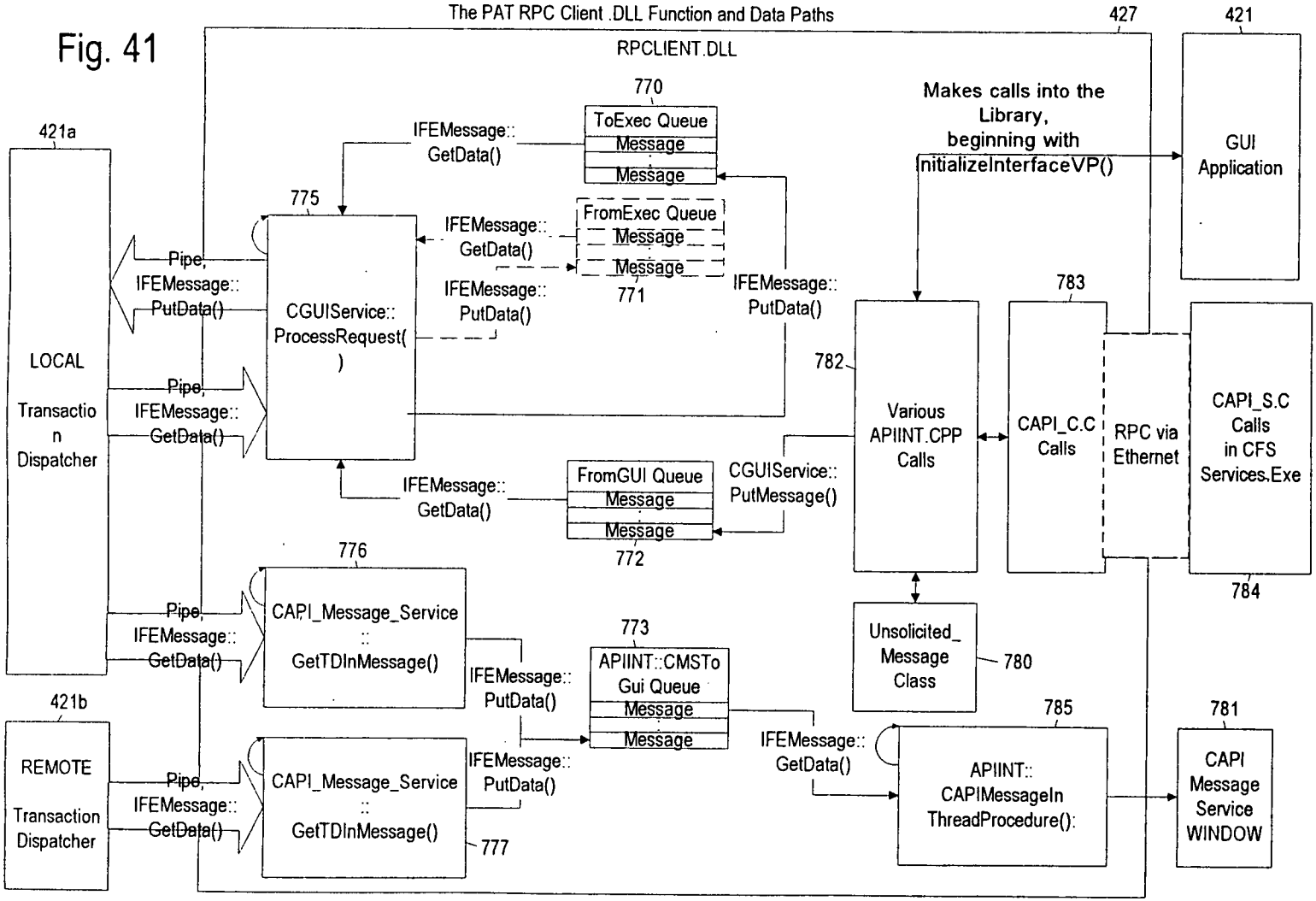

The PAT RPC Client .DLL Function and Data Paths
RPCLIENT.DLL
427
421
GUI Application
Makes calls into the Library, beginning with InitializeInterfaceVP()
770
ToExec Queue
Message
Message
IFEMessage:: GetData()
775
FromExec Queue
Message
Message
771
IFEMessage:: GetData()
IFEMessage:: PutData()
IFEMessage:: PutData()
421a
LOCAL Transactio n Dispatcher
Pipe, IFEMessage:: PutData()
Pipe, IFEMessage:: GetData()
CGUIService:: ProcessRequest( )
783
782
Various APIINT.CPP Calls
CAPI_C.C Calls
RPC via Ethernet
CAPI_S.C Calls in CFS Services.Exe
784
FromGUI Queue
Message
Message
772
IFEMessage:: GetData()
CGUIService:: PutMessage()
776
CAPI_Message_Service :: GetTDInMessage()
Pipe, IFEMessage:: GetData()
IFEMessage:: PutData()
773
APIINT::CMSTo Gui Queue
Message
Message
Unsolicited_ Message Class
780
421b
REMOTE Transaction Dispatcher
Pipe, IFEMessage:: GetData()
CAPI_Message_Service :: GetTDInMessage()
IFEMessage:: PutData()
777
IFEMessage:: GetData()
785
APIINT:: CAPIMessageIn ThreadProcedure():
781
CAPI Message Service WINDOW

Fig. 42a

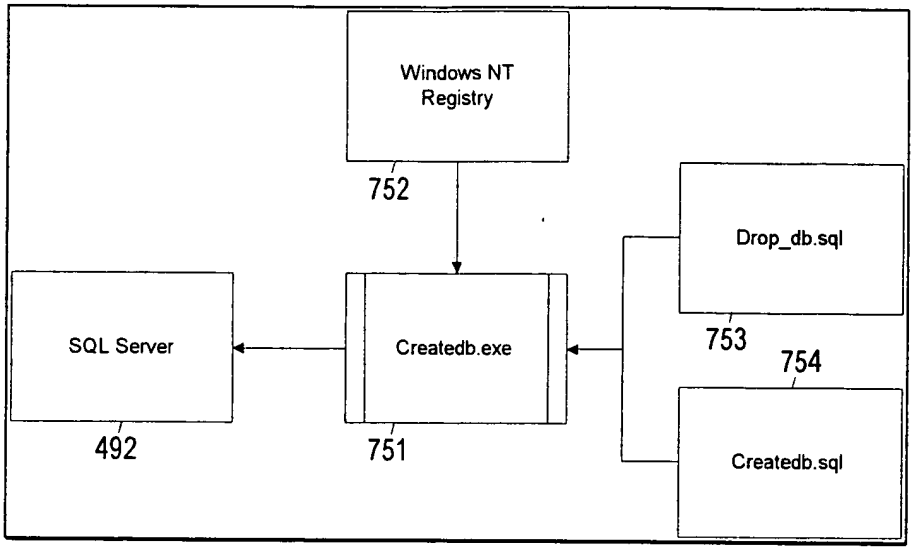


Fig. 42b